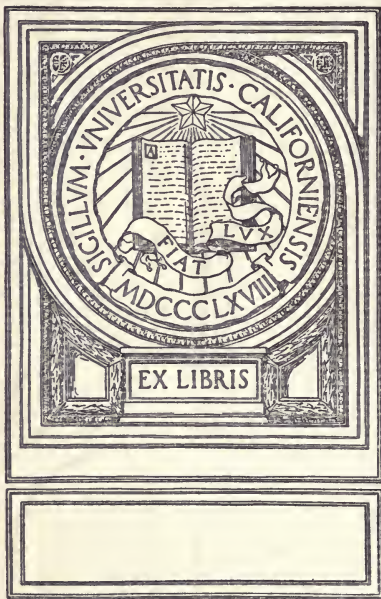


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Bartholomew's sketch 11 Dec. 1894: "We have none of Macfadyen's type  
here - but I know the widow family of Mr. Macfadyen, and I have  
been trying to find out some information about his Herbarium. It was  
left in Jamaica in the hands of an executor who is dead years ago  
but the family are making inquiries, and it is possible that I may  
get information which will enable Mr. Garrett to find it out and  
reclaim it."

Thayer's sketch 6 Nov. 1894: "I have been looking into the question of Mac-  
fadyen's plants. I find that we have in our Herbarium a few common  
West Indian plants without names and collected anterior to the publication  
of his Flora. But we have not and never had any type of his pub-  
lished, even. It is a great pity that no absolute voucher and some-  
times more to secure these. But that is past history."

Bar is older than what  
I have at present collected  
I am

C. G

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**THE FLORA OF JAMAICA.**

THE ALMA MATER

THE  
FLORA OF JAMAICA;

A  
DESCRIPTION

*J. Urban.*

OF

THE PLANTS OF THAT ISLAND,

ARRANGED ACCORDING TO THE NATURAL ORDERS.

WITH AN APPENDIX,

CONTAINING

AN ENUMERATION OF THE GENERA ACCORDING TO THE LINNÆAN SYSTEM,

AND

AN ESSAY ON THE GEOGRAPHICAL DISTRIBUTION OF THE SPECIES.

By JAMES MACFADYEN, M.D.

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VOL. I. RANUNCULACEÆ—LEGUMINOSÆ.

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TO

SIR WILLIAM JACKSON HOOKER,

K. H., LL.D., F. R., A. & L. S., &c. &c.

REGIUS PROFESSOR OF BOTANY IN THE UNIVERSITY OF GLASGOW.

To no one could this Volume be more appropriately dedicated than to you, to whom I am indebted for my early instructions in the Science of Botany, and from whom I first acquired a taste for its study. It will in the highest degree be gratifying to me, should the result of my labours meet with your approbation, and should you consider that I have at all contributed in extending our acquaintance with the Flora of the West Indies.

JAMES MACFADYEN.

GLASGOW, 10th Oct., 1837.

195903



## P R E F A C E.

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IN presenting the following work to the public, the author trusts that he has, at least in part, supplied, what has long been considered a desideratum—a Systematic Account of the Plants of Jamaica. Hitherto the student of the Botany of this Island has been obliged to resort for information to the voluminous writings of Sloane, Browne, Jacquin, Plumier, Swartz, Cavanilles, Vahl, &c., many of which are rare, and with difficulty procured, especially in a situation so distant from Europe. The only work easily accessible, was the *Hortus Jamaicensis* of Mr Lunan, a compilation which must have been found very useful to every one who has endeavoured to become acquainted with Jamaica Botany. But while I acknowledge readily my obligations, especially during the early period of my study, to that work, I must state, that scarcely one-half of the plants at present known to be indigenous to the Island are noticed in it, and that the descriptions are in general defective, and not a few erroneous. To supply these deficiencies, has been my endeavour in the present undertaking.

In the arrangement of this work the Natural System has been adopted. By it the various members composing the Vegetable Kingdom are arranged according to the order which Nature herself appears to have followed. By it the genera are collected and disposed in groups, not from any relation existing in respect to any one particular class of

organs, such as the length, number, or position of the stamens and pistils, which is the foundation of the system of Linnæus: but by characters essential, and collected from different classes of organs, in accordance with the affinities which Nature herself has established. And not the least recommendation is, that the Families of Plants thus constituted, comprehend individuals not only allied in their more obvious peculiarities, but also possessing similar properties, whether useful or otherwise, in Medicine, Domestic Economy, or the Arts. This System of classification is therefore peculiarly adapted to the arrangement of a Flora which is new or but imperfectly explored, the uses of the Plants it comprehends being comparatively unknown. The common properties of each Family of the Natural System have already been in a great measure established. When we meet therefore with a new plant, and discover the Natural order to which it belongs, we are provided with a key which informs us of certain of its properties, and a guide in our further inquiries as to the different uses to which it may be applied.

Great, however, as the advantages are by which the Natural System is recommended, still it must be allowed, that it is not so well adapted for the Tyro in Botany. A certain acquaintance with the science is previously necessary before the student can avail himself of its classification in detecting the place which a plant, presented to him for the first time, occupies in the system. It may be otherwise, when, after the labours of many succeeding Botanists, we may be enabled to see the way clearly before us, and we may have the path which Nature has followed, distinctly traced out for our guidance; and with the same ease that we can point out the individuals composing the well-marked Families of the *LEGUMINOSÆ* and the *MELASTOMACEÆ*, so also, the Orders which are ill-defined being remodelled with characters distinct and obvious, we shall, with equal facility,

be able to class each of the many plants whose exact place is at present obscure and doubtful. It may then be possible that the Natural System may come recommended not only as conformable with the order of Nature, but also as offering facilities in its application equal to any other. Until this be accomplished, we must, in order to facilitate the progress of the student, avail ourselves of another system—of that in which the principles of arrangement are more obvious and easily apprehended. We have such a system in that which bears the name of Linnæus. In it, the course of Nature has not been strictly regarded, and in order to simplify, Families have been broken up, and allied genera separated and scattered.

We may indeed define the Natural System as that which, taking a philosophic view, attempts an arrangement of the members of the Vegetable Kingdom according to the order observed in their creation, so far as can be detected by our finite understandings: the artificial or Linnæan, as that which merely classifies them in such a manner as may be most easy for the Botanist to point out or discover the place which each species may or ought to occupy in its arrangement. The student of the Artificial System may be compared to him, who is satisfied with what knowledge of a district he can acquire by traversing the bye-ways and surveying each portion of a country in detail: the student of the Natural System, in addition to this, ascends an elevated situation, in order that he may become acquainted with the relative bearings, and enjoy the beauty of the landscape as a whole.

In order, therefore, to facilitate the progress of the young Student, I shall give at the end of the Natural System, an arrangement of the Genera, according to the Linnæan Classification. By means of this, when he wishes to find out the name and genus of a plant presented to him for the first time, he can resort to the Artificial System of arrange-

ment as to an Index: by it he will be referred to the place it occupies in the Natural System, where the different species will be enumerated. A little practice will render this easy, and the student will gradually acquire a knowledge of the Natural Orders, without being exposed to discouragement by the obstacles which he would otherwise encounter.

I take this opportunity of expressing my obligations to the writings of Professor De Candolle of Geneva, whose arrangement of the Natural Orders, exposed in the *Prodromus Systematis Universalis Regni Vegetabilis*, I have strictly followed. To his works, also, I acknowledge myself in a great measure indebted for the definitions of the genera, and, with those of Lindley and Richard, for the general descriptions of the Orders. As to the introduction of the latter in the present publication, it may be objected that the reader might with more propriety have been referred to the works from which they have been drawn. I have to state in answer, that although I am not without hopes that this work may be thought worthy of the notice of the eminent in the Science, still as my principal aim is to facilitate the study of the Botany of these Islands, I considered they could not with propriety be left out, especially as, in the West Indies, books of Science are scarce, and with difficulty procured.

I need scarcely state that I shall thankfully avail myself of any information, which may be communicated to me by any one who has made the Botany of Jamaica an object of his attention. As for my own share of labour, I may be allowed to state, that it has occupied a great portion of my leisure during a residence of upwards of twelve years in the Island. I have carefully examined the characters of every plant within my reach, and compared my own descriptions with those of preceding Botanists. I have visited a considerable portion of the Island, so that I have had opportunities of studying the peculiarities of the Flora of

Dec 1825



each district. The nature, also, of my occupation as a medical practitioner in the country, has been of some advantage, as in my almost daily rides I have had opportunities of watching each plant during its period of flowering, and perfecting its fruit. There still remains, however, an extensive and interesting field for Botanical research : there are still left many plants undiscovered and undescribed, a rich reward to stimulate to exertion those who may follow in the same path. It is not the work of a single individual, even if favoured with unusual length of life, and gifted in the highest degree with mental and bodily energy, to complete a perfect history of the Botany of an Island like Jamaica. It would have been vain for me, in hope of accomplishing this, to have waited from year to year, exposed to many contingencies and accidents, any one of which might have rendered all my labours in vain, and all the information I have acquired as if it had never been known. I have therefore taken the present opportunity to offer the result of my labours to the Public, trusting it will be found to give a tolerably accurate account of what is at present known of the vegetable productions of this Island, and in the hope that it may be found serviceable to those who in aftertimes may follow in the same course, and engage, under more favourable auspices, in the task of perfecting the History of the Flora of Jamaica.

## TABLE

OF BOTANICAL SIGNS AND WORDS EMPLOYED AS ABBREVIATIONS  
IN THE FOLLOWING WORK.

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♂ = A male, or anther-bearing plant or flower.

♀ = A female, or pistil-bearing plant or flower.

♂♀ = A hermaphrodite plant or flower.

∞ = An indefinite number.

? = A sign of doubt, &c.

0 or ○ = Nihil, none or wanting.

\* = Indicates that the author has not had it in  
his power to examine the species to which  
it is affixed.

Icon. }  
Ic. } = Plate.  
Pl. }

f. = Figure.

Tab. or t. = Tabula or plate.

V. = Volume.

I. II. &c. = The number of the volume of a book.

1. 2. &c. = The number of the page of a book.



# TABULAR VIEW OF THE GENERAL DIVISIONS OF THE NATURAL SYSTEM.

## CLASS I.

VASCULARES, seu COTYLEDONEÆ:  
*Flowering Plants*, with spiral  
 vessels, connected by cellular  
 tissue.

SUBCLASS I. Exogyne; stem conical furnished  
 with bark and a woody centre, with the outer  
 portion of the wood the youngest and softest:  
 or Dicotyledoneæ, seed lobes 2, opposite, or  
 several and verticillate.

Floral cover-  
 ing double:

1. *Thalamifloræ*; Petals many,  
 distinct, inserted with the Sta-  
 mens upon the Thalamus, and  
 not accrete to the Calyx.

2. *Calycifloræ*; Petals many, dis-  
 tinct or united among them-  
 selves, inserted with the Sta-  
 mens on the Calyx.

3. *Corollifloræ*; Petals united in-  
 to a monopetalous corolla, in-  
 serted on the Thalamus, and  
 bearing the Stamens.

Floral cover-  
 ing single:

1. Petaloidæ.

2. Glumaceæ.

## CLASS II.

CELLULARES, seu ACOTYLEDONEÆ:  
*Flowerless Plants*, with-  
 out spiral vessels, principally  
 composed of cellular tissue.

1. Filicoideæ

2. Muscoideæ

3. Aphyllæ.





The Second Volume of this Work will appear early in the following year. It is proposed, on the completion of the Work, to commence a series of Illustrations of such Plants as are new or may not have been previously figured.

THE

# FLORA OF JAMAICA.

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## CLASS I. DICOTYLEDONEÆ.

### THALAMIFLORÆ.

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#### ORDER I. RANUNCULACEÆ.

CALYCINE sepals 3-6, hypogynous, deciduous. Petals 5-15, hypogynous, in one or more rows, distinct. Stamens  $\infty$ , hypogynous: anthers adnate, in the true genera turned outwards. Pistils numerous, seated on the disk: ovary 1- or many-seeded: style one to each ovary, short, simple. Carpels 1-celled, 1- $\infty$ -seeded: seeds albuminous: embryo minute: albumen horny.

Herbaceous or rarely shrubby plants. Leaves alternate, or opposite, generally divided, with the petiole dilated and forming a sheath half clasping the stem. Hairs 0, or simple.—The general properties of this Order are acidity and causticity. Several powerful medicinal principles have been obtained from some of the members: such as *Aconitine* from the roots of the *ACONITUM NAPELLUS*, and *Delphinine* or *Delphine* from the seeds of the *DELPHINIUM STAVISAGRIA*.

#### I. CLEMATIS. *Traveller's Joy.*

Involucre 0, or calyciform, under the flower. Sepals 4-8, coloured. Petals 0, or shorter than the sepals. Carpels  $\infty$ , terminated by a long mostly barbato-plumose tail.—*De Cand.*

Roots perennial; leaves exactly opposite.—*Name*, from κλημα *the shoot of a vine*, which its long branches somewhat resemble.

1. *Clematis dioica*. *Diœcious Traveller's joy*.

Flowers panicled diœcious, leaves ternately divided, divisions ovate subcordate acuminate triply nerved entire glabrous, pericarps oval, pedicels pubescent.

*Sloane, Hist. I. 199. t. 118. f. 1.*—*Browne, Jam. 255?*—*De Cand. Syst. I. 143.*—*Prod. I. 4.*

HAB. Common on the lower hills, especially in limestone districts.

FL. August—December.

Fruticose, ascending to a considerable height on neighbouring shrubs and trees: branches terete, glabrous, striated, stained with purple. Leaves opposite, petioled, ternate; leaflets in the young plant connected together; in the old, petioluled, ovate, subcordate, acuminate with a bluntish apicula, 3-(or sub-5)-nerved, smooth, shining above: petiole long, terete, striated, occasionally (as also the branches) granulato-verrucose: petiolules pedato-patent. Peduncles axillary, frequently longer than the leaves, subdivided: pedicels pubescent. Flowers greenish-white, and slightly fragrant, by abortion sub-diœcious.—♂. Calyx with sepals oblong, pubescent, reflexed. Stamens ∞, length of the sepals.—♀. Pericarps about 20, oval, compressed, pubescent, terminated by a long feathery awn.

This is the only species indigenous to the Island, the *CLEMATIS scandens foliis 5-nerviis*, referring to this species and not to *C. AMERICANA* as supposed by De Candolle.—The long slender branches of this plant are employed by the Negroes as a substitute for cord, in tying rails, bundles of grass, &c. The leaves are hot and acrid to the taste, and, when bruised into a pulp, and applied to the skin, they act as a rubefacient, and even vesicate. An infusion of the bruised leaves and flowers, forms a good lotion for the removal of spots and freckles from the skin: and a decoction of the root in sea-water, mixed with wine, is said to act as a powerful purge in hydropic cases. Barham quaintly remarks, "I never could understand why it is called Traveller's joy, or what joy travellers reap from it."

## II. RANUNCULUS. *Crowfoot*.

Calycine sepals 5. Petals 5, rarely 10, with a foveolar nectariferous squamule at the base. Stamens and ovaries ∞. Carpels ovate, subcompressed, terminating in an awn scarcely longer than the seed, arranged in a globose or cylindrical head.

Annual or perennial herbaceous plants; possessed of acrid properties, so as to be rubefacient when applied externally, and in some degree poisonous when exhibited internally. Of the 140 species comprehended in the genus, the greater proportion are natives of Northern latitudes, and very few are to be found between the tropics.—*Name*, from RANA a frog, from the plants growing in moist situations, where frogs usually abound.

### 1. *Ranunculus repens*. *Creeping Crowfoot*.

Calyx spreading, flower stalks furrowed, scyons creeping, leaves with three petiolulate leaflets which are 3-lobed, or 3-partite and cut.—*Hooker*.

*Eng. Bot.* t. 516.—*Smith, Eng. Fl.* III. 51.—*Hooker Fl. Scot.* I. 175.—*De Cand. Syst.* I. 285.

HAB. Common in the neighbourhood of St Catherine's Peak, St Andrew's.

FL. June—August.

This is evidently an introduced plant which has become naturalized from the garden of the late Mr Matthew Wallen at Cold-spring, and is now very plentiful in the above locality. According to the authorities quoted by De Candolle, it is to be found in every part of Europe, in several districts of North America, in Madeira, and we can now add Jamaica.

### 2. *Ranunculus parviflorus*. *Small Flowered Crow-foot*.

Leaves hairy 3-or sub-5-lobed with the lobes inciso-dentate, stem spreading decumbent hairy, peduncles opposite the leaves, calyx as long as the petals, pericarps granulato-tuberculose.

*Engl. Bot.* t. 120.—*Engl. Fl.* III. 53.—*Hooker, Brit. Fl.* 267.—*De Cand. Syst.* I. 300.

HAB. Portland Gap. St Catherine's Peak. Pastures at Salt-Hill.

FL. April, May.

The radical leaves are, as in the specific character: those of the stem, and those opposite to the flowerstalks, are also 3—5 lobed; but the lobes are sub-entire; petioles of the radical leaves striated, hairy, membranaceous and expanded at the base. Peduncles compressed, striated, hairy, flowered. Sepals oblong, hairy, yellowish, with a green mid-nerve. Petals length of the sepals, oblong, 1 or 2 usually wanting. Pericarps compressed, nearly orbicular, beaked with the remains of the incurved style; under the microscope pellucido-granulated.

It is difficult to imagine how this species could have come to establish itself in the above situations. It is a native of the



warmer parts of Europe, and has been found in Barbary, Teneriffe, and the East Indies. In the neighbourhood of Coldspring, it may be met with, covering patches of ground by the road-sides. The flowers are very small, and there are seldom more than two petals in each flower.

## ORDER II. DILLENIACEÆ.

Distribution of the parts of the flower quinary: æstivation imbricated.—Calycine sepals: 2 external, 3 internal, persistent. Petals 5, uniserial, hypogynous, deciduous. Stamens  $\infty$ , inserted on the disk, free or polyadelphous, and either placed regularly around the pistil, or on one side of it: anthers 2-celled, always turned inwards. Fruit of 2–5 unilocular carpels, either distinct or cohering. Seeds either several, or two, or by abortion solitary, surrounded by a pulpy arillus: testa hard: embryo minute, lying in the base of the fleshy albumen.

Trees, shrubs, or suffruticose shrubs. The flowers are in general yellow, and in some of the species rival those of the Cisti. They possess no remarkable properties. The leaves and bark are astringent, without any bitter or aromatic flavour. They are all natives of the warmer parts of the globe.

### I. TETRACERA.

Flowers most frequently dicecious, or polygamous. Calycine sepals 4–6, roundish, imbricated, persistent, after the anthesis frequently accrete, concave.—♂. Stamens  $\infty$ , dilated at the apex.—♀. Ovaries 3–5: styles simple, acute. Capsules of the same number as the styles, opening on the inner side, sub-bivalved: seeds 1–2, ovate, shining, arillated.—*De Cand.*

Shrubs or low trees, generally scandent: leaves alternate, penninerved, coriaceous: flowers paniced or racemose.—*Name*, from *τετρα* four, and *κερας* a horn, from the four capsules being recurved at the apex like so many horns.



1. *Tetracera Jamaicensis*. *Jamaica Tetracera*.

Leaves ovali-oblong somewhat acute prolonged at the base subglabrous subserrulated, peduncles racemose glabrous somewhat rough.

*De Cand. Syst. I. 40.—Prod. I. 68.*

HAB. St Thomas in the Vale, common.

FL. December.

A shrub, scandent, supporting itself on neighbouring plants: branches terete towards their extremities hispid, coloured. Leaves with few serratures towards the apex, pinnately-nerved with the nerve on the under surface hispidulous, 5 inches long, and  $2\frac{1}{2}$  broad: petiole keeled. Panicle terminal and axillary, erect, racemose. Flowers yellow, showy, pedicelled. Calycine sepals 5; the 2 inner the largest, roundish, concave, externally perianthous; internally sericeous: the 3 outer small, membranaceous. Petals 5, obovato-oblong, rounded, deciduous. Stamens  $\infty$ , yellow: filaments dilated at the apex, bearing the anthers at the sides. Ovary bilocular: style curved, club-shaped: stigmata 2, capitate. Capsules 2-4, large, glabrous, awed with the persistent style.

This is a showy plant and appears to have been first collected by Mr Wiles, and first described by Prof. De Candolle, who met with a specimen in the herbarium of A. B. Lambert, Esq. For an illustration of the fruit, the reader is referred to Gærtner, I. 336, t. 69.

## ORDER V. ANONACEÆ.

Calycine sepals 4, short, persistent, very seldom free, more commonly united into a 3-4-fid, or 3-4-partite calyx. Petals 6, hypogynous, in two rows, coriaceous, with a valvular æstivation. Stamens numerous, placed closely together and covering a large hypogynous usually hemispherical disk: filaments very short: anthers adnæ, turned outwards, with an enlarged 4-cornered connectivum, which is sometimes nectariferous. Ovaries usually numerous: styles short: stigmata simple. Fruit composed of a number of carpels, which are either succulent or dry, ses-

sile or stalked, 1- or many-seeded, distinct or concrete into a fleshy mass. Seeds attached to the suture in 1-2 rows: testa membranaceo-crustaceous, fragile: embryo minute, in the base of the hard fleshy ruminant albumen.

Trees or shrubs: branches terete, with the bark usually reticulated or verrucose, and, when young frequently pubescent. Leaves alternate, jointed on the stem, simple, almost always entire, without stipules. Peduncles in general axillary, sometimes lateral, or opposite to a leaf, usually bracteolated, solitary or 2-3 together, 1— $\infty$ -flowered, not unfrequently by abortion indurated, enlarged, and hooked.—The roots, bark, leaves, and, when it is capsular, the fruit are acrid, pungent, aromatic, stimulant, and have been used as substitutes for the different condiments. The fruit, when fleshy, is usually edible, and much esteemed in tropical countries. The flowers of several of the species, such as those of the *UVARIA ODORATA*, which is a common tree in the neighbourhood of the Botanic Garden at Bath, are remarkably fragrant. The *ANONACEÆ* are inhabitants of the warmer parts of the globe. None of them appear to have been known to the ancients. According to the Monograph of Dunal, this Order comprehends 105 species, of which 47 are indigenous to tropical America.

## I. ANONA.

Sepals 3, united at the base, concave, subcordate, somewhat acute. Petals 6, thickish, the inner ones smaller or none. Anthers  $\infty$ , subsessile, dilated, and angulated at the apex, covering the torus. Carpels  $\infty$  united into a single sessile berry, with the rind muricated squamose or reticulated, pulpy within,  $\infty$ -celled; cells radiating from a central receptacle, 1-seeded.

Trees or shrubs. Leaves sometimes pellucido-punctate.—*Name*, from a term used by the American Indians. Linnæus used the word *Annona* from the Latin, which signifies a year's increase or supply of corn, &c.

### SECT. 1.—*Petal subequal.*

#### 1. *Anona muricata. Sour-Sop.*

Leaves oblong subacuminate glabrous shining, peduncles usually solitary one-flowered, outer petals sub-cordate acute, inner rounded, fruit muricated, spinules fleshy, recurved.

*Browne, Jam.* 254.—*Sloane, Jam.* II. 166. t. 225.—*Swartz, Obs.* 220.—*De Cand. Syst.* I. 467.

HAB. Common every where.

FL. April—August.

A tree, seldom more than 15 feet in height, with suberect branches: branchlets ferruginous, rimuloso-verrucose, glabrous. Leaves oblong, sub-obovate, acuminate, glabrous, shining and deep green above, minutely puberulous albedo-punctulated and paler beneath, 6 inches long and  $1\frac{3}{4}$ ths broad: petiole short, terete. Peduncles in the axilla of a leaf which has fallen off, or arising from naked portions of the stem or branches, either solitary, or two or three together, thick, 1-flowered. Flowers large. Calycine segments short, deltoid, thickish. Petals; the 3 outer ones ovate, sub-cordate, concave, coriaceous, externally yellow: the 3 inner somewhat smaller, orbiculate rounded and obtusely apiculate below the apex, concave. Torus hemispherical, puberulous. Anthers subsessile; locules 2; pollenary globules arranged in two rows, connected together in a bead-like manner. Ovaries linear, angulose, sericeo-pubescent: stigmata sessile, linear, angular, glabrous, accrete to one another, deciduous. Fruit size of a *Shaddock*, ovoideo-cone-shaped, incurved at the apex, green, glabrous, muricated; spinules ovato-subulate, acute, recurved: pulp white: seeds oblong, compressed, black.

This is a very common tree in all parts of the Island. The fruit is gratefully acid, and may be eaten plain, or mixed with sugar and water, to which wine and nutmeg are sometimes added. Horses, cows, hogs, and indeed every description of stock are fond of it. The flowers have a grateful but somewhat heavy odour. The smell of the leaves is rather disagreeable, and has some resemblance to that of the leaves of the *Currant*. The wood is said to be hard.

## 2. *Anona montana*. *Mountain* or *Wild Sour-Sop*.

Leaves oblong acuminate at both ends glabrous and shining above with the axils of the nerves excavated and ciliated beneath, peduncle opposite to a leaf twice the length of the petiole, outer petals rotundo-ovate acuminate, inner orbiculate obtuse, fruit subglobose muricated with the spinules straight.

*A. muricata*, *Var. β. Dunal?*

HAB. Orchard, Port-Royal mountains.

FL. May—October.

A lowly tree, branches terete, glabrous. Leaves alternate, petiolate, oblong, acuminate at both ends, nerved, with the axils of the nerves beneath excavated and ciliated, reticulato-venose, subcoriaceous, glabrous, shining above, about 5 inches in length,

and 2 broad: petiole short, plane above. Peduncle opposite to a leaf, twice the length of the petiole, solitary, 1-flowered, thick, terete, furnished with 2 scale-like bracteas. Flowers rather smaller than those of the common *Sour-Sop*. Calyx nearly 3-angular, 3-fid: divisions subacuminate, ciliated, with fulvous hair. Petals of an olive green colour, not stained on the back with purple, velutino-puberulous; the 3 outer rotundovate, subacuminate, thick, leathery; the 3 inner of nearly the same size as the outer, but thinner, concave, rounded. Fruit subspherical, covered with fleshy subulate straight spinules.

This, at first sight would appear to be nearly allied to *A. MURICATA*. On examination they will be found to be distinct species. The fruit is dry and not edible.

### 3. *Anona palustris*. *Alligator apple*, or *West India Cork-wood*.

Leaves oblong or ovato-oblong acuminate very glabrous, peduncles alternating with or opposite to a leaf, petals acute, fruit subareolated.

*Sloane*, II. 169. t. 228. f. 1.—*Swartz*, *Obs.* 223.—*De Cand.* *Syst.* I. 469.

HAB. Marshy land near the Sea. Rochefort. The Ferry. Morasses at the east end of the Island.

FL. March—June.

A tree 6—15 feet in height. Leaves slightly acuminate, finely nerved. Peduncles towards the end of the branches, about the same length as the petiole, solitary, 1-flowered. Bracteas scale-like; one external at the base of the peduncle; the other on the inside and higher up. Flowers greenish yellow, resembling in size and appearance those of the common *Sour-Sop*. Petals; the 3 outer ones roundish-ovate, subacuminate, concave, thick, leathery; the 3 inner half the size of the outer, acute, externally whitish, internally of a dark blood-colour. Berry size of the *Sour-Sop*, heart-shaped, green, glabrous, subareolated.

The fruit of this species has a somewhat grateful smell; but to the taste it is very disagreeable, and is said to be narcotic, and even poisonous. The Alligators, according to Long, subsist, at certain seasons, on the fruit of this tree, and he describes them as watching for it, when ripe, to drop into the water. The wood is very light, and is employed by the Negroes as a substitute for cork, to stop up the mouths of their Calabashes, and other rude vessels. The floats of fishing nets are also made of it.

This, and the two preceding species are evergreens. In those which follow, the old leaves drop off some time previous to the complete development of the new ones.



SECT. 2.—*Inner petals minute. Flowers pendent.*

4. *Anona squamosa. Sweet-Sop.*

Leaves lanceolate sub-glabrous minutely albido-punctulated beneath, peduncles generally 2 together lateral, outer petals lanceolate, inner minute, fruit rounded obtusely squamose.

*Sloane*, II. 168 t. 227.—*Browne*, 256.—*Jacq. Obs.* I. 13. t. 6.—*Swartz, Obs.* 221.—*Gært. Fruct.* II. 193. t. 138.—*De Cand. Syst.* I. 472.—*Prod.* I. 85.—*Hooker, Bot. Mag.* 3095.

HAB. Cultivated; growing spontaneously in the dry plains on the south side of the Island.

FL. May—September.

A tree, about 15 feet in height, of a stunted irregular growth: branches spreading; branchlets subflexuose, pubescent. Leaves alternate, petiolate, oblongo-lanceolate, subacuminate, subglabrous above, glaucous minutely puberulous and albido-punctulated beneath, 6 inches long and  $1\frac{1}{2}$  broad: petiole terete, puberulous. Peduncles generally 2 together, subopposite to a leaf, an inch in length, terete, puberulous, thickened towards the flower. Flowers pendent. Segments of the calyx short, deltoid, externally sericeo-pubescent. Outer petals an inch long, lanceolate, triquetrons, of a thick coriaceous texture, externally under the glass velutino-puberulous, internally at the base with a purple-coloured excavation: inner petals minute, spatulate, keeled on the back, thick. Fruit size of an *Orange*, roundish, or ovoideo-cone-shaped, glaucous, of a yellowish green colour, squamose: scales mamilloso-tuberculated: pulp white with a tinge of yellow, very sweet. Seeds elliptic, compressed or obsoletely angulated, of a chestnut colour: albumen filled with numerous transverse brown lines or clefts.

This tree was formerly considered as a native of the continent of South America. St Hilaire has however attempted to prove that it must have been originally imported from the East Indies.\* In this Island, it is common in every district, especially in the plains. The fruit is a great favourite with the Creoles; but I have never met with a European who was partial to it. In times of scarcity, I am informed that it has been taken green, and, after being boiled, employed as a substitute for what, in the language of the country, is called *bread-kind*.

5. *Anona Cherimolia. Cherimoya or Cherimolia.*

Leaves oblong impunctate pubescent above tomentuloso-velutine beneath, peduncles subopposite to

\* *Plantes Usuelles des Brâziiliens. Livr. VI. p. 5.*

a leaf, outer petals nearly closed externally tomentuloso-velutine, inner petals minute, fruit subglobose reticulated subsquamose.

*A. tripetala*, *Ait. Hort. Kew.* II. 252.—*Willd. Sp.* II. 1264.—*Sims, Bot. Mag.* 2011.—*A. Cherimolia*, *De Cand. Syst.* I. 468.—*Prod.* I. 84.

HAB. Port-Royal Mountains.

FL. April—August.

A tree usually 15 feet in height: branches spreading, long, virgate, sub-flexuose, cinereous; the young green shoots sericeo-pubescent. Leaves alternate, petiolate, oblong, subacuminate, bluntish, entire, nerved, green and pubescent above, paler and velvety beneath. Peduncles usually subopposite to a leaf, sometimes in the axil of a leaf which has dropt off, subsolitary, 1-flowered, about an inch in length, terete, velvety. Flowers pendent. Sepals small, externally sericeo-pubescent. Petals; the 3 outer ones about an inch in length, lanceolate, blunt, thick, triquetrous, excavated and tinged with crimson internally at the base, erect, half-closed, opening towards the apex, externally velvety: inner petals minute, keeled on the back. Torus hemispherical, bearing the stamens and pistils in a roundish sub-3-gonal mass. Filaments linear, angular, capitate at the apex: anthers unilateral, 2 celled, with each cell containing two rows of white globules of pollen, connected together in a bead-like manner. Fruit usually the size and form of that of the *Sour-Sop*, of a light green colour: pulp white; seed black.

This species appears to hold a place between the *Sweet-Sop* and the *Custard-apple*: the leaves partake of some of the characters of both, and the fruit is subsquamose like that of the former, and somewhat reticulated like that of the latter. It is a native of Peru. It must have been introduced into this country many years ago, as it is now very common in the mountains of the parishes of St David, St Andrew, and Port-Royal. Out of these districts indeed it does not appear to thrive, as I never met with a tree of the kind in any other part of the Island. The fruit arrives at its greatest perfection in the Port-Royal mountains. It is one of the most delicious of the kind; there being a slight agreeable acidity mingled with a luscious sweetness. The flowers are put into snuff, as a substitute for the Tonquin bean, for the purpose of giving a grateful flavour.

## 6. *Anona reticulata*. *Netted Custard-apple*.

Leaves oblongo-lanceolate acute subglabrous minutely pellucido-punctulated, peduncles lateral about 3-flowered, outer petals oblong nearly closed, fruit ovato-globose reticulato-areolated.

*A. maxima*, Sloane, *Jam.* II. 167. t. 226.—*A. reticulata*, De Cand. *Syst.* I. 473.—*Prod.* I. 85.—*Hooker, Bot. Mag.* 2911 and 2912.

HAB. Port-Royal mountains. St Thomas in the East. Not uncommon.

FL. June.

A tree 15—20 feet in height: branches spreading, virgate, subflexuose, towards their extremities albido-papillose, and appresso-pubescent. Leaves 6—8 inches long, nerved, somewhat rugulose, obtuse at the base, to the glass minutely puberulous especially the under surface of the nerves. Peduncles lateral, branched, bearing about 3 pedicelled flowers. Flowers pendent. Sepals minute, subcordate, acute. Outer petals large, linear, obtuse, greenish, thick, 3-quetrous, excavated and stained with purple internally at the base: inner petals minute, lineari-oblong, green, stained with red near the apex. Fruit rather larger than a full-sized orange, of a brownish colour with dots of a darker shade, marked with angular reticulations whose areolæ are constituted by the enlarged and united pistils: pulp yellowish-white: seed numerous, oblong, compressed, of a dark shining brown colour: albumen horny, marked with numerous transverse lines.

This would be a very excellent fruit were it not that it is rather too luscious to the taste. It is very common in the plain of Liguanea; the fruit however is seldom brought to market. It is said to be a remedy for diarrhœa and dysentery. I suspect however that it can only pretend to this character from being light and easily digested. The French colonists give it the name of CŒUR DE BŒUF, *Ox-heart*; to which in shape it bears some resemblance.

For a full description, and for an accurate figure, the reader is referred to Vol. III. of the New Series of the Botanical Magazine.

## II. MONODORA.

Calycine sepals 3, united at the base. Petals 6, united at the base; 3 exterior, oblongo-lanceolate, undulato-crisped; 3 interior, cordiform, connivent. Anthers numerous sessile, surrounding the base of the ovary. Ovary single: stigma sessile. Berry smooth, subglobose, 1-celled: seeds  $\infty$ , imbedded in pulp.

A genus first established by Dunal.—*Name*, from *μονος* one, and *δωρον* a gift, in allusion to its solitary fruit.

1. *Monodora Myristica*. *Calabash-Nutmeg*.

*Anona Myristica*, *Gært. de Fruct.* II. t. 125. f. 1.—*Monodora Myristica*. *Dunal, Monogr. Anon.* 80.—*De Cand. Syst.* 2. 477.—*Spreng. Syst. Veget.* II. 604. *Hooker, Bot. Mag.* 3059.

HAB. Cultivated.

FL. May.

A tree about 15 feet in height, resembling the *Anonas* in habit. Leaves distichous, oblong, 4—5 inches long, and 1—2 broad, petioled. Peduncles opposite to a leaf, 1-flowered, 4—7 inches long, pendulous. Bractea usually situated above the middle of the peduncle, ovate, subcordate, sessile, green, slightly variegated with orange or yellowish red, crispato-undulated, reflexed when the flower is full blown. Flowers large, showy, fragrant. Calycine sepals green, undulato-crisped, unequal from that opposite to the bractea being smaller than the other two. Outer petals oblongo-ovate, undulato-crisped, of a yellow colour variegated with reddish brown spots or stripes: inner petals shorter but thicker than the outer, erecto-connivent, cordate, convex, veined, ciliato-tomentose, externally of a yellowish-white, internally shining and of a pale yellow variegated with pale crimson spots. Anthers numerous, sessile closely set on the receptacle. Ovary spherical, crowned with a sessile flattened stigma. Berry (according to Gærtner) subglobose, large, 1-celled, glabrous, corticated. Seeds imbedded in pulp, ovato-oblong, angled by mutual pressure, ferruginous integument double: albumen fleshy, hard, sculptured with deep nearly parallel lines, and a longitudinal furrow: cotyledons foliaceous, cordato-lanceolate: radicle rounded, directed towards the hilum.

A very full and accurate description, and also a figure of this plant, by Dr Bancroft, is to be met with in the fifth volume of the New Series of the Botanical Magazine. This tree is said to have been brought from the Continent of South America, and to have been first planted at the Retreat estate, Clarendon. Mr Robert Brown, however, considers it more probable, that the seeds were introduced by the Negroes from some part of the west coast of Africa. The only tree at present in the Island is at Miss Green's garden in Liguanea, near Constant Spring estate. It never, however, in that situation, perfects its fruit. The seeds are described by Long, as impregnated with an aromatic oil, resembling that of the East India nutmeg, so as to admit of being employed for similar purposes in food or medicine. The only perceptible difference is that they are less pungent.

### III. XYLOPIA.

Calyx 3-5-lobed, with the divisions ovate, coriaceous, somewhat acute. Petals 6; the outer larger



than the inner. Stamens  $\infty$ , inserted generally on a globose receptacle. Carpels 2-15, shortly stipitate, compressed, 1-celled, 1-2-seeded, in some dehiscent, in others subbaccate. Seeds obovate, shining, sometimes arillated.—*De Cand.*

Trees or shrubs, with the bark and fruit aromatic, natives of the West Indies, and of the warmer regions of America.—*Name*, abbreviated by Linnæus, from XYLOPICRON, a name given by Browne, and derived from the two Greek words ξύλον *wood*, and πικρός, *bitter*.

\* 1. *Xylopia muricata*. *Muricated Bitter-wood*.

Leaves lanceolate acuminate strigose beneath, bearded at the apex, peduncles many-flowered, carpels muricated.

*Xylopicon*, *Browne*, 250. t. 5. f. 2.—*Xylopia frutescens*, *Gærtn. Fruct.* I. 339. t. 69. f. 7.—*X. muricata*, *De Cand. Syst.* I. 499.

HAB. Mountains in Sixteen-mile Walk.

FL. —?

A shrub: branches glabrous, virgate, subtoruose. Leaves shortly petiolate, nervose beneath, 3 inches and upwards long, and about an inch broad. Peduncles short, branched, many-flowered. Calyx 3-5-lobed. Petals lanceolate. Capsules shortly stipitate, ovato-globose, punctato-muricated, coriaceous, 2-valved, bilocular, 2-seeded.—*De Cand.*

Browne calls this the smaller *Bitter-wood*, and states that he found it at the foot of the mountains in Sixteen-mile Walk. It does not appear to have been observed by any other Botanist.

\* 2. *Xylopia glabra*. *Glabrous Bitter-wood*.

Leaves oblango-ovate glabrous, peduncles 1-flowered solitary or two together, carpels smooth.

*Xylopicon foliis amplioribus nitidis*, *Browne, Jam.* 251.—*X. arbor Barbadosensis*, *Pluk. Alm.* 295. t. 238. f. 4.—*Dunal, Monogr.* 121. t. 19.—*De Cand. Syst.* I. 501.—*Prod.* I. 92.

HAB. Mountains behind Bull-bay.

FL. —?

A tree; branches terete, glabrous; slightly punctulated. Leaves very shortly petiolate, oval, acuminate with the apex obtuse, glabrous, 2 inches long, and 1 broad. Peduncles bracteated. Calyx 3-fid, with the lobes very obtuse, glabrous. Alabastra oblong, externally appresso-pubescent, 4-lines long.

According to Browne, the wood, bark, and berries of this tree have a warm bitter taste, resembling that of orange seed, and are described as agreeable to the taste, and grateful to the palate. The wild pigeons are said to feed much upon the berries, and owe to them the delicate bitterish flavour, so peculiar to them when they are in season.

#### IV. GUATTERIA. *Lancewood.*

Calyx 3-partite; lobes ovate, subcordate, acute. Petals 6, ovate, or obovate. Anthers  $\infty$ , subsessile. Carpels  $\infty$  subbaccate, dry, coriaceous, ovate or subglobose, stipitate, 1-seeded.—*De Cand.*

Trees or shrubs, natives of the warmer regions of both hemispheres.

##### \* 1. *Guatteria virgata.* *Common Lancewood.*

Leaves ovate acuminate very glabrous sub-sessile, peduncles axillary solitary 1-flowered, berries substipitate coriaceous ovoid slightly obtuse.

*Uvaria lanceolata*, Swartz, *Prod.* 87.—*U. virgata*, *Fl. Ind. Occ.* 999.—*Dunal, Monogr.* 131. t. 31.—*Guatteria virgata*, *De Cand. Syst.* I. 506.

HAB. Native of mountain woods at the west end of the Island.

FL. —?

A shrub, or a tree of moderate height: branches horizontally diverging, patulous, terete, glabrous. Leaves alternate, very shortly petiolate, ovato-lanceolate, acuminate with the apex obtuse, glabrous, venose, rather stiff, an inch and a half in length. Peduncles axillary, scarcely longer than the petioles, solitary, squamulose, 1-flowered. Flowers small, whitish, fragrant. Calyx 3-partite; lobes minute, orbiculate. Petals 6, subrotund; the 3 outer larger than the 3 inner. Anthers 16—20, subsessile, incumbent, incurved, white. Ovaries 8, oblong, erect. Berries shortly stipitate, small, ovate.

##### \* 2. *Guatteria laurifolia.* *Laurel-leaved Lancewood.*

Leaves oblong acuminate at both ends glabrous shortly petiolate, peduncles axillary somewhat crowded together, berries substipitate ovoid mucronate.

*Browne*, 370.—*Uvaria laurifolia*, Swartz, *Fl. Ind. Occ.* II. 1001.—*G. laurifolia*, *Dunal, Monogr.* 132. t. 32.

HAB. Mountain woods in the interior of the Island.

FL. —?

A tree of moderate height: branches lax, diverging; branchlets flexuose, virgate, glabrous. Leaves subdistichous, very shortly petiolate, oblong, acuminate at both ends, shining above, 3—4 inches long. Peduncles axillary and inter-foliaceous, generally 3—4 together, rarely solitary, 3—4 lines long, 1-flowered: unexpanded flowers ovato-trigonal. Calyx 3-partite; lobes very small, rounded, concave, ciliated. Petals white, sub-equal. Anthers 16, acuminate, subsessile, inserted on a globose receptacle. Ovaries 6—8, oblong, angulated, hairy. Berries substipitate, coriaceous, elliptico-ovoid, glabrous, mucronate.

I have not had an opportunity of examining the flowers or fruit of either of these species of *Lancewood*, as they have become, though formerly common, very rare in the districts in which I have resided. According to Lunan, the former of these species is known by the name of the *black*, and the latter by that of the *white Lancewood*. The name *Lancewood* is given from the circumstance of the stem of the tree being straight, light, and tough, and therefore well adapted for the shafts of *lances*. Both species appear to be equally esteemed, and sought after for the shafts of chaises.

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## ORDER V. MENISPERMACEÆ.

Flowers by abortion unisexual, most frequently diœcious, very small: sepals and petals confounded, definite in number, deciduous.—♂ Stamens monadelphous or rarely free, equal in number to the petals, and opposite to them, or 3 or 4 times more numerous.—♀ Ovaries few, free, rarely united together. Drupe in almost all berried, 1-seeded, oblique, or lunulated: seed corresponding in shape: embryo curved or peripheral: albumen none or small, fleshy.

This order is composed of twining or sarmentaceous shrubs: stipules none: leaves alternate, simple, rarely compound, mucronate: flowers small, usually racemose.—The roots and the mature stems, are bitter, tonic, and exciting, and have been celebrated as diuretic and stomachic. As examples, we may instance *COCCULUS PALMATUS*, a native of Southern Africa, the roots of which are known by the name of *Colomba* or *Calumba*: and the *CISSAMPELOS PAREIRA*, a common plant in this, as

well as in most of the West India Islands. The fruit of scarcely any of the species is edible: in many, as in the *MENISPERMUM COCCULUS*, (the *cocculus indicus* of the shops), it is acrid and inebriating, and is employed for catching fish and birds, and for destroying worms and lice.

## I. CISSAMPELOS.

♂ Sepals 4. Petals 0. Stamens monadelphous, 4 or 2.—♀ Sepal 1, lateral. Petal 1, situated before the sepal. Ovary 1: stigmata 3. Drupe oblique, reniform: albumen 0: embryo long, terete, peripheral: radicle superior, situated at the base of the stigmata.—*De Cand.*

Climbing shrubs.—*Name*, from *κισσός* ivy, and *αμπελος* the vine.

### 1. *Cissampelos Pareira*. *Pareira-brava*, or *Velvet leaf*.

Leaves subpeltate subcordate ovato-orbiculate pubescent above albido-villous beneath, ♀ racemes usually longer than the leaves, berries hispidulous.

*Swartz, Obs.* 380. t. 10. f. 5.—*De Cand. Syst.* I. 533.

HAB. Common in the mountains, on fences and in thickets.

FL. February—July.

Twining, filiform, branched, terete, spirally striated, villous. Leaves alternate, petiolate, suborbiculate, varying from obtusely-ovate to reniform, subcordate, rounded or emarginate at the apex, mucronate; when young pubescent above, and albido-villous beneath; when old subglabrous above and pubescent beneath; nerved, reticulato-venose: petiole shorter than the leaf, terete, subtomentose.—♂ Sepals 4, obovato-spathulate, obtuse, concave, externally hairy. Nectary concave, orbiculate, entire. Filament 1, in the centre of the nectary, erect, very short: anthers 5, united into a capitate body, excavated in the centre, opening externally along the margin by 4 horizontal slits.—♀ Racemes at the ends of the branches, or axillary, longer than the leaves: bractæas leafy, gradually diminishing in size to the end of the raceme, shortly petiolate, suborbiculate, aristato-mucronate, pubescent, with about 5 minute shortly pedicelled flowers within each. Sepal solitary, unilateral, spathulate, hirsute. Petal solitary, placed before and but half the length of the sepal, truncated, hypogynous. Ovary ovate, villous: stigmata 3. Berry globose, slightly compressed, of an orange-red colour; hispidulous.



De Candolle, in his System, takes no notice of what is described here, as also by Swartz, as a nectary.

2. *Cissampelos microcarpa*. *Woolly Pareira, or Velvet leaf*.

Leaves sub-peltate orbiculate subreniform tomentose beneath, berries at first pubescent afterwards glabrous.—*De Cand.*

Var.  $\beta$ . *C. Pareira*, *Swartz, Obs.* 380.—*Browne, Jam.* 557.—*C. microcarpa, De Cand. Syst.* I.

HAB. Plains and lower hills, where the white limestone prevails.

FL. February—July.

Stem villous. Leaves pubescent above, and villosotomentose beneath.—♀ Racemes occasionally shorter, but usually longer than the leaf. In every other respect, this plant agrees with the preceding species. This may therefore be considered as merely a variety of the *C. PAREIRA*.

The juice of the leaves of the *Pareira-brava*, according to Piso, is employed by the Brazilians as a remedy against the bite of serpents. Sloane mentions that the leaves may be used, beat up into a pulp, as an application to sores. The root, which is black, stringy, of the thickness of that of Sarsaparilla, and runs superficially under the surface of the ground, has long been employed in medicine. It has an agreeable bitter taste, and has the character of being diuretic and alterative. It is prescribed in dropsy, dysury, urinary calculus, jaundice, gout, and cutaneous diseases. The infusion is recommended to be drunk freely during the irritable stage of gonorrhœa, and is also employed as a vehicle in the administration of other medicines, where we wish a mild grateful bitter to be combined with the principal indication. It has also been found useful in pulmonary complaints. "I knew a Physician," says Barham, "perform great cures on consumptive persons, who told me that his remedy was only a syrup made of the leaves and root of this plant, for which he had a pistole a bottle." The analysis of M. Feneulle (*Journal de Pharmacie*, VII. 404) gives as its composition a resin, a yellow bitter principle, another brown principle, fecula, an animal substance, and different salts. It may be administered in doses of a scruple to a drachm of the powdered root, or a wine glassful 3 times daily of the infusion of an oz. of the root to a pint of boiling water.

## ORDER VIII. NYMPHÆACEÆ

Sepals and petals numerous, imbricated, passing

gradually into each other, the former persistent, the latter inserted on the disk. Stamens numerous, inserted above the petals on the disk : filaments petaloid : anthers adnate, bursting inwards by a double longitudinal cleft. Disk large, surrounding the ovary. Ovary many-celled, polyspermous, with the stigmata radiating from a common centre. Fruit many-celled, indehiscent. Seeds very numerous, enveloped in a gelatinous arillus : albumen farinaceous : embryo small, on the outside of the base of the albumen, enclosed in a membranaceous bag : cotyledons foliaceous.

The plants of this Order are floating aquatics, with peltate, or cordate fleshy leaves. It is remarkable that they are all natives of the Northern hemisphere, as none have hitherto been discovered in the Southern. The root-like stems and flowers were in ancient times regarded as narcotic, and sedative. The former are slightly bitter and astringent, and, as they abound with fecula, have been, after being well washed, employed, as at present in China, as an article of food. The seeds also are edible and wholesome, and those of one species (*NELUMBium SPECIOSUM*), were formerly used as food by the Egyptians, being the celebrated bean of Pythagoras. All the species are remarkable for the beauty of their flowers, and, from this, as also from their anomalous vegetation, were regarded by the ancient Egyptians, and by the Hindoos even in the present day, among their sacred plants.

## I. *NELUMBium*.

Carpels many, distinct, 1-2-seeded, 1-styled, immersed in an elevated obconical deeply foveolated (on the upper surface) torus. Seeds solitary in each carpel, destitute of either arillus or albumen.—*De Cand.*

*Name* from *Nelumbo*, the name of the water-lily in Ceylon.

### 1. \* *Nelumbium Jamaïcense*. *Jamaica Nelumbo*.

Leaves orbiculate peltate rayed beneath, fruit obconical, seed large nidulant.—*Browne*.

*Nymphæa*, *Browne*, *Jam.* 343.

HAB. Lagoons behind the Ferry.

FL. — ?

*Browne* appears to be the only Botanist who has had an opportunity of observing this plant.

## II. NYMPHÆA. *Water-lily.*

Carpels 16–20, polyspermous, included within the enlarged torus, with the stigmata radiating over a berry-like fruit. Nectary 1, in the centre of the stigma, sessile, ovato-globose. Sepals 4, surrounding the margin of the torus. Petals 16–28 adnate on an elevated torus which covers the ovary.

*Name*, given to this genus from the circumstance of the plants, of which it is composed, growing in water, the residence ascribed by the poets of antiquity to the Water-Nymphs.

### 1. *Nymphæa. Large Water-lily.*

Leaves peltate sinuato-dentate very glabrous, nerves beneath very prominent and areolately reticulated.

*Sloane, Hist. I. 252.—Browne, 243—De Cand. Syst. II. 54.*

HAB. Lagoons, and ponds of water. Near the Ferry.

FL. Throughout the year.

Leaves peltate, cordate, sinuato-dentate, with the under surface of deep purple colour, and traced with prominent reticulated nerves: petiole terete, coloured. Sepals 4, lanceolate, nerveless, externally green marked with purple dots, upwards of an inch in length. Petals 12–20 (the two outer ones sepaloid,) oblong, slightly narrowing towards the base, obtuse, thin, white, longitudinally veined. Stamens numerous, in about 4 rows, inserted (as also the petals) on the under surface of the elevated torus. Stigmata 15–20, peltately rayed. Nectary in the centre of the shield of the stigmata, sessile, hemispherical. Carpels of the same number as the stigmata, many-seeded: seeds attached to the sides of the carpels, arillated.

There is a variety common in the ponds near the sea-shore in St George's, in which the leaves are *duplicato-dentate*.

### 2. *Nymphæa blanda? Marsh-lily.*

Leaves cordate very entire, nerves on the under surface channelled, petals 12–16 acuminate.

*N. alba*, major, *Sloane, I. 252.—Lunan, Hort. Jam. II. 271.—*

*N. blanda*, *Meyer, Prim. Fl. Esseq. 201.—De Cand. Syst. II. 59.*

HAB. Ditches and marshy land, not common. Marsh, on the road from Montpellier estate to the Penn, St Thomas in the east.

FL. Throughout the year.

Calycine sepals 4, lanceolate, marked externally with purplish streaks or dots. Petals in my specimens 12, (the 4 outermost, sepaloid), shorter than the sepals, but twice the length of the

stamens. Stamens numerous, in several rows. Stigmata rayed. Nectary in the centre of the stigmata, mamillary.

## ORDER IX. PAPAVERACEÆ.

Calycine sepals 2, leafy, deciduous. Petals hypogynous, irregularly plicate previous to evolution, either 4, or a multiple of that number. Stamens hypogynous, 8, 12, or some other multiple of 4. Ovary 1 : style short, or none : stigmata 2, or many. Capsule 1-celled with several placentæ, or pod-shaped with 2 parietal placentæ. Seeds  $\infty$ , very rarely (and that from abortion) solitary : albumen between fleshy and oily : embryo minute : cotyledons plano-convex, ovato-oblong.

The greater number of the plants composing this Order are annuals. The leaves are alternate : peduncles axillary and terminal : flowers usually large, of a white, yellow, or red, but never of a blue colour. All parts abound with a milky juice, usually white, rarely yellow or tinged with red, of a gum-resinous nature, to the taste acrid and bitter, and possessing, especially when white, a narcotic property. The seeds of all the species are oily, and are in no degree narcotic.

### I. ARGEMONE.

Calycine sepals 2-3, concave, mucronate, rough with aculeiform hairs. Petals 4-6. Stamens  $\infty$ . Ovary ovate, crowned with 4-7 radiating persistent stigmata. Capsule 1-celled, dehiscent at the apex. Seeds spherical, scrobiculate.—*De Cand.*

*Name from αργεμα, the disease cataract of the eye, for which the juice of this plant was supposed to be a remedy.*

1. *Argemone Mexicana. Mexican or Gamboge Thistle.*

*Papaver spinosum, Auctorum Antiq.*—A. *Mexicana, Bot. Mag.* 243.—*De Cand. Syst.* II. 85.

HAB. Common, especially in the plains.



FL. Throughout the year.

Herbaceous, 1-2 feet in height: branches erect, terete, glaucous, subaculeate with stiff prickly hairs. Leaves alternate, sessile, oblong, repando-sinuated with the angles dentato-spinulose, nerved, glaucescent. Peduncles axillary, very short, 1-flowered. Flowers large, yellow. Calyx sparingly aculeato-pilose; sepals usually 2, accrete, previous to the opening of the flower, concave with the apex hooded, and externally conical (the cone terminating in a prickly awn), deciduous. Petals usually 6, wedge-shaped at the base. Stamens about 20, half the length of the petals, and of the same length as the ovary: anthers oblong. Ovary oblong, angulose, setaceo-pilose with appressed hairs: stigmata usually 4, purple, reflected, concave. Capsule size of a walnut, somewhat oblong, angulose, setaceo-prickly. Seeds numerous, spherical, compressed, with numerous minute roundish excavations on the surface.

This plant, as its specific name indicates, was supposed at one time to be peculiar to Mexico. It has however been found in all the warmer parts of the globe, as far South in the *Old World* as the Cape of Good Hope, and as far North in the *New* as Canada. It is common in all the West India Islands, in the valleys and on the hills of St Helena, and even in the Sandwich Islands. De Candolle states that he has had opportunities of examining specimens from very different parts of the world, and that he could detect no difference. He supposes that it must have migrated from America, which he considers to have been its native country, by means of its seeds conveyed by travellers, to India and elsewhere.

The Spaniards call the fruit of this plant, *Figo del inferno*, from the prickly hairs with which it is armed. Barham however tells us a different story. "The fruit," he says, "is called *Ficus infernalis*; and well it may, for it contains seeds enough to send any that should take them wilfully to *inferno*, being much stronger than any opium." There is however a good deal of exaggeration in this. The late Dr Affleck mentions that he frequently administered the seeds in the form of emulsion, by rubbing up two drachms of them with sugar, and adding a pint of boiling water; and that it acted at first as an anodyne, and afterwards as a purgative. Were this the case, it would be invaluable as a remedy in many diseases; but unfortunately it has not been found to fulfil the desired intentions, for an emulsion, prepared in the manner above described, produced, when administered, no perceptible effect. An oil, expressed from the seeds, is employed in Mexico by the native artists, for varnishing the wood, to prepare it for the reception of the colours. In the East Indies, the native doctors, are said, to make use of this oil as an external application in cases of headach, and for scald-head.

All parts of the plant abound with a milky gelatinous juice,

which, on being exposed to the air, changes to a bright yellow, and on drying assumes the appearance of Gamboge. The native doctors of India drop the juice of the plant into the eye, in cases of chronic Ophthalmia accompanied with opacity or dulness of the cornea; and they also apply it to primary syphilitic sores. The infusion of the plant is said to be diuretic, and to give relief in Stranguary from blisters.

ARGEMONE ALBIFLORA, a native of Georgia and Louisiana, has of late been cultivated in our gardens, from seed sent by Dr Hamilton of Plymouth. It is a very handsome plant, with white flowers thrice the size of those of the common *Gamboge thistle*. It appears to be perennial, and is correctly regarded by some Botanists as a distinct species.

## II. BOCCONIA.

Sepals 2, caducous. Petals 0. Stamens 8-24. Ovary substipitate: stigmata 2, patent. Capsule 2-valved, 1-seeded: seed fixed to the bottom of the capsule, erect.

The species, belonging to this genus, which are natives of China, are herbaceous; those, which are indigenous to America, are shrubby. They all abound in a yellow juice.—*Name*; in memory of Paolo Boccone, M. D., a Sicilian monk, under the name of Sylvius, of the Cistercian Order, Author of "ICONES ET DESCRIPTIONES PLANTARUM," published by Morrison, at Oxford, 1764.

### 1. *Bocconia frutescens*. *Parrot-weed*, or *Celandine*.

Suffruticose, leaves pinnatifid wedge-shaped at the base.

*Sloane*, I. 196. t. 125.—*Browne*, 244.—*Jacq. Am.* 146.—*Swartz, Obs.* 187.—*Lodd. Bot. Cab.* 83.—*De Cand. Syst.* II. 90.

HAB. Common in the interior of the Island.

FL. October—January.

Suffruticose, usually 6 feet in height, terete, marked with the scars of the leaves which have dropt off, fragile, dividing into a few simple branches which at their extremities are velutino-tomentose: central pith large, white. Leaves at the ends of the branches, a foot or more in length, ovali-oblong, wedge-shaped at the base, pinnatifid; lobes broad, subacute, subserrated, green and puberulous with minute flocculent white tufts above, glauco-cinereous and tomentoso-velutine beneath: petiole nearly 2 inches in length. Panicle terminal, a foot or more in length, erect, crowded: common peduncle 3-gonal, farinose, branched: pedicels about  $\frac{1}{2}$  an inch in length, filiform. Bractees at the divisions of the panicle, and at the base of the pedicels,

oblongo-lanceolate, acuminate, concave, puberulous. Sepals obovato-oblong, shortly subacuminate with the apex blunt, concave, externally sanguineo-purpurent, caducous. Stamens 12, or more frequently 16: filaments finely capillary: anthers linear. Alabastrum ovate. Pulp, in which the base of the seed is immersed, of a cinnabar colour.

This plant is indigenous to all the West India Islands. It grows in waste places, and in land which has been partially cultivated. All parts of the plant, especially previous to flowering, abound with a yellow juice; and Barham supposes that, from its resembling the common *Celandine* in this respect, it has received the same name. According to Hernandez, the Indian kings cultivated it in their gardens; but for what purpose, it is difficult to imagine, as, though a handsome plant, and of a rather remarkable appearance, its flowers have no pretensions to beauty. The juice is acrid and bitter, and, like that of the Gamboe thistle, has been employed in cases of chronic Ophthalmia. The expressed juice of the root has also been made use of in similar cases, and to remove warts and fungous flesh, and as an application for tetters and ring-worm. The root scraped and beat up into a pulp, is an excellent application to foul ulcers. From the colour of the root, it commonly receives the name of the *Wild Carrot*.

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## ORDER XI. CRUCIFERÆ

Perigonium double, hypogynous. Calyx of 4 sepals, cruciate. Petals 4, cruciate, alternate with the sepals. Stamens 6, of which 2 are shorter, solitary, and opposite to the lateral sepals; 4 longer, in pairs, opposite to the anterior and the posterior sepals. Disk with various green glandules between the petals and the stamen and ovary. Ovary unilocular, 1-styled. Fruit a silique. Seeds exalbuminose: embryo curved, with the cotyledons folded over the radicle.

Herbaceous plants, annual, biennial, or perennial, very seldom suffruticose: leaves alternate; flowers usually yellow or white, seldom purple. The species comprised in this order, are, according to De Candolle, 900 in number, of which he has had opportunities of examining 800. There are only two

species indigenous to the West Indies; the greater number being natives of temperate regions. This is, as De Candolle remarks, an order eminently European. The localities of the different species are very various. Some delight in open sandy plains; others in alpine regions, bordering the line of perpetual snow, marking the extreme limits of vegetation. Not a few establish themselves in the vicinity of the habitations of man, following him in his migrations, and like him becoming established in every quarter of the globe.—The general properties of the Cruciferae are stimulating and acrid, depending on an oily volatile principle, the characters of which have not as yet been completely made known to us by Chemistry. From being stimulant, they excite, when taken internally, the digestive organs, and are peculiarly useful in removing their torpid and impaired action which prevails in Scurvy. Hence all of the *Cruciferae* have the character of being Antiscorbutic. They are also Diaphoretic and Diuretic, and, in the case of the white mustard-seed, Emmenagogue.

### I. NASTURTIIUM. *Cress.*

Pod nearly cylindrical (sometimes short); valves concave, neither nerved nor keeled. Cotyledons accumbent, (O=). Calyx patent.—*Brown.*

Herbaceous and generally aquatic plants. The species are more widely diffused than is usual with the Cruciferae. The name is derived from *NASUS* the nose, and *TORTUS convulsed*, from the effect produced on that organ by the acrid pungent quality of these plants.

#### 1. *Nasturtium officinale.* *Water-cress.*

Leaves pinnated, leaflets ovate subcordate sinuato-dentate.

*Sloane*, I. 193.—*Browne*, 272.—*Sisymbrium nasturtium*, *Eng. Fl.* 192.—*Eng. Bot.* t. 855.—*Nasturtium officinale*, *Br. Hort. Kew.* IV. 110.—*De Cond. Syst.* II. 188.

**HAB.** Brooks and marshy grounds in the mountains, and in cool shady situations.

**FL.** April—May.

In some of our Jamaica specimens, the leaflets are subopposite, 4-paired with an odd one, oblong, subcordate and unequilateral at the base, (the lowest side being the largest and subauriculated,) rounded, somewhat retuse at the apex, sinuato-dentate; the terminal leaflet is, also not larger than the pair next to it, although the innermost pair is much smaller. In these respects they agree with the variety  $\gamma$  of De Candolle, described by Ruiz and Pavon as a native of Chili. These



slight peculiarities appear to be the result of a luxuriant state of the plant, favoured by climate and situation.

The *water-cress* is to be found in every quarter of the globe, from the Cape of Good Hope to Norway, and from Japan to Madeira in the Old World, and in the Northern and Southern divisions, as well as in the West India Islands of the New. It delights in the shady banks of rivulets, and, unaffected by climate, preserves every where its characters almost unchanged.

This is a well known, and wholesome salad. It is slightly stimulant, and has the reputation of being antiscorbutic. It is cultivated to supply the London market in the valley of Springhead, near Gravesend. Is also grown in the vicinity of Eu and Rouen in Normandy. In this Island it is to be found in every rivulet which is not subject to be dried up during drought.

## II. CARDAMINE. *Ladies' Smock.*

Pod linear; valves flat, generally separating elastically, nerveless. Seed-stalks slender. Cotyledons accumbent ( $\bigcirc =$ ).—*Hooker.*

Name, from *καρδαμουν* water-cresses.

### 1. *Cardamine sylvatica.* *Wood-land Ladies' Smock.*

Leaves pinnated and without stipules, leaflets petiolated, the radical ones orbiculate and sinuato-dentate, the upper ones and especially those near the base of the leaf cuneato-elongated and toothed, petiole ciliated towards the base, stamens 4 rarely 6, stigma nearly sessile.

*De Cand. Syst.* II. 260.—*C. impatiens*, *Fl. Dan.* t. 735.

HAB. Common in Port-Royal and St David's mountains, on rocks with a northern exposure.

FL. January—March.

Usually 8 inches in height, dividing into several branches, which are simple, compressed, angulose, glabrous. Leaves principally radical, pinnated: leaflets petiolated, usually 3 paired with an odd one; the outermost leaflet the largest, orbiculate, slightly acute at the base, irregularly sinuato-dentate; the innermost pair at a distance from the base of the leaf, cuneato-elongated, toothletted at the apex; all of them glabrous: petiole villous and ciliated towards the base. Raceme terminal; at first, as also the pedicels, short, but afterwards elongating. Flowers small, white. Sepals 4, minute, subunequal, linear-oblong, bluntnish, coloured. Petals 4; sometimes only 2, or

none; clawed; limb obovate, rounded at the apex. Stamens usually 4. Ovary linear: style very short: stigma bearded with minute papillary hairs. Silique nearly an inch in length, erect, subterete, compressed, glabrous, opening elastically, with the valves revolute towards the apex: seeds orbiculate, light-ferruginous.

I have no doubt but that this is the *C. Sylvatica* of authors, said to be common throughout Europe. It has probably been introduced by accident into this country. It is a very common plant in our mountain districts. The elasticity of the valves of the pods is very distinct, and the seeds are projected by means of it to a considerable distance.

### III. COCHLEARIA. *Scurvy-grass.*

Pouch oval or globose, many-seeded, with the valves turgid. Filaments simple. Seeds not margined. Calyx patent. Cotyledons accumbent, ( $\bigcirc =$ ).—*Brown.*

*Name*, from the leaves resembling a spoon (COCHLEAR) in shape.

#### 1. Cochlearia Armoracia. *Horse-radish.*

Pouch oblong, stigma dilated nearly sessile, radical leaves oblong on long footstalks crenate, cauline ones elongato-lanceolate serrate or entire.—*Hooker.*

*Engl. Bot. t. 2323.*—*Hook. Scot. I. 196.*—*Eng. Fl. III. 177.*

HAB. Cultivated, or an outcast from gardens.

FL. —?

This plant has long been introduced into the Island. It is, when once established in a garden, with difficulty eradicated. I have never observed it in flower. Lunan however remarks that "it blossoms and seeds luxuriantly."\* The root is long and runs deep in the ground; it has a pungent flavour, is supposed to favour digestion, and is well known at our tables as a condiment: being a strong stimulant, it acts externally as a rubefacient: and a syrup† is prepared from it, which is peculiarly useful in hoarseness, and recent sore throats.

### IV. CAPSELLA. *Shepherd's-purse.*

Pouch laterally compressed, obcordato-cuneate;

\* Lun. Hort. Jamaic. 1. 384.

† Take, Fresh horse radish root scraped 1 drachm.

Water, - - - - 4 oz.

Sugar, - - - - ½ lb:

Mix and boil to form a syrup. A tea-spoonful a doze.

valves keeled, without wings, many-seeded. Cotyledons incumbent, (○ ||).—*Hooker*.

*Name*, the diminutive of CAPSULA, a little casket or capsule.

1. *Capsella bursa-pastoris*. *Common Shepherd's purse*.

*De Cand. Syst.* II. 283.—*Thlapsi bursa-pastoris*, *Engl. Bot.* t. 1435.

HAB. Waste places, and coffee-fields, in the mountains.

FL. Throughout the year.

This is a very common plant in Europe, from whence it has migrated to this, as well as to almost every other region of the globe. Thus, it has been found in India and the Mauritius, and at Magellan's straits and the Cape of Good Hope. In the specimens met with in this Island, the leaves towards the bottom of the stem are petiolated, obovato-oblong, attenuated at the base; those of the stem, lanceolato-sagittate; all of them acute, toothed, hispid with stellated hairs. Seeds 10 in each cell; under the glass minutely punctulated.

V. *SISYMBRIUM*. *Hedge-mustard*.

Pod rounded or angular. Cotyledons incumbent, (○ ||) sometimes oblique, plane. Calyx patent, sometimes erect.—*Brown*.

*Name*, from *σισυμβριον*, the designation of some plant probably allied to this genus.

1. *Sisymbrium officinale*. *Common Hedge-mustard*.

Pods subulate pubescent closely pressed to the main-stalk, leaves muricated hairy, stem hispid.—*Brown*.

*Erysimum officinale*, *Engl. Bot.* t. 735.—*Sisymbrium officinale*, *Engl. Fl.* III. 196.—*Hooker, Brit. Fl.* 305.—*Pursh, Fl. Bor. Am.* II. 436.—*De Cand. Syst.* II. 436.

HAB. In coffee pieces and by the roadsides, Port-Royal mountains, not uncommon.

FL. Throughout the year.

There cannot be a doubt but that this is identical with the species which bears the above designation, and which is common in every part of Europe. The only point of difference is, that the pods, in our Jamaica specimens, are, when young, under the glass sparingly puberulous, but afterwards glabrous. This is the case, according to Pursh, in the specimens collected by him in South Carolina.



The *hedge-mustard* has been celebrated in medicine as a diuretic, detersive, and expectorant. It has been employed as a remedy for asthma and hoarseness, and hence its French name of *Herbe aux chanteurs*. Dr Cullen recommended a syrup prepared by boiling equal quantities of the juice and sugar or honey, as almost a specific for habitual *hoarseness*. The plant when bruised acts as a rubefacient. Goats and sheep are the only animals partial to it as food.

## VI. SENEBIERA. *Wart-cress*.

Pouch didymous, without valves or wings : stigma sessile : cells 1-seeded. Cotyledons linear, incumbent, (○ ||).

*Named* in honour of Jean Senebier of Geneva, author of several works on Vegetable Physiology.

### 1. *Senebiera pinnatifida*. *Lesser Wart-cress*.

Leaves pinnatifid, lobes oblong toothed or sub-incised, silicules compressed didymous emarginate at the apex (to the glass) reticulated.

*Coronopus didyma*, *Smith et Hooker*.—*Senebiera pinnatifida*, *De Cand. Syst.* II. 523.

HAB. Common in Port-Royal and St Andrew's mountains.

FL. Throughout the year.

This plant is to be found in almost every part of the globe. De Candolle suspects that it must have originally been a native of America, and that it has become disseminated through Europe by accident, or from escaping from some garden. Hence it is unnoticed by the elder botanists, and even now it is principally found near the sea-shore or in the vicinity of botanic gardens. It is very abundant in the mountain districts of our own Island. The early leaves which are radical, and much larger than those of the stem, afford when young an excellent salad, much superior to those of the garden cress, which they resemble in taste.

## VII. LEPIDIUM. *Pepper-wort*.

Pouch with the cells one-seeded : valves keeled. Petals equal. Cotyledons incumbent (○ ||), rarely accumbent, (○ =).—*Brown*.

*Name*, from λεπίς *a scale* ; the little pouches resembling a scale in form.

1. *Lepidium sativum.* *Garden-cress.*

Silicules orbiculate winged emarginate, leaves variously divided or cut, branches not spinescent.

Var.  $\gamma$ . *latifolium*, *De Cand. Syst.* II. 533.

HAB. A common weed in the mountains, and moist situations.

FL. Throughout the year

This is said to have originally been indigenous to Persia, and the Island of Cyprus. It has long been cultivated in the gardens of Europe, and has become a very common weed in hilly situations, and even in the plains, where the climate is moist, of this Island. It is a favourite salad, and has the reputation of being antiscorbutic and antiphthisical.

VIII. BRASSICA. *Cabbage, Turnip.*

Pod 2-valved (with a sterile 1- $\infty$ -seeded beak).  
Cotyledons conduplicate ( $\bigcirc > >$ ) Calyx erect.—  
*Brown.*

*Name*, derived from the Celtic BRESIC a cabbage, according to Théis.

1. *Brassica oleracea.* *Cabbage.*

Leaves glaucous with pollen subcarnose repand or lobed very glabrous.

*De Cand. Syst.* II. 583.

HAB. Cultivated.

FL. — ?

The following varieties of this useful vegetable are cultivated in this Island:—1. BULLATA; the *Savoy cabbage*. 2. CAPITATA; including the following subvarieties or sorts; A, RUBRA, the *red cabbage*; B, DEPRESSA, the *drum-head*; C, CONICA, the *sugar loaf*, *Battersea*, and *early York cabbages*. 3. CAULORAPA, the *turnip stemmed cabbage*. 4. BOTRYTIS, including, A, CAULIFLORA, the *cauliflower*; and B, ASPARAGOIDES, the *broccoli*. There is a 5th variety, ACEPHALA, of which one sort, RAMOSA or *Brussels' sprouts*, is occasionally cultivated. Of these, the early York is the most hardy, and comes to the greatest perfection.

The Cabbage tribe is the most ancient as well as the most extensive of all the classes of cultivated vegetables. The B. OLERACEA SYLVESTRIS, the original stock of this diversified race, grows naturally along the sea-shore at the foot of Mount Athos in Greece, along the West coast of England, and in the Firth of Forth in Scotland. In this part of the world, we are indebted for our supply of seeds of the different varieties to England and

the United States, although they flower and seed readily in our mountains. Should it be desired to obtain seed for our own use, some of the best heads ought to be selected, and dug up, and sunk in the ground to the top of the stem; and in the course of a few months a flower stalk will appear, followed by a plentiful supply of seed.

The Cabbage, of all the European vegetables cultivated in this Island, is produced in the greatest perfection, being not at all inferior to what is grown in more temperate climates. It is generally considered as of a flatulent nature, and apt to disagree with persons of a weak digestion. The ancient Greeks and Romans were of the belief, that it prolonged life, and preserved the brain from the intoxicating effects of wine.

## 2. *Brassica campestris.* *Field Cabbage.*

Leaves glaucous with pollen subcarnulose, the lower ones the first produced subhispid or ciliated lyrate dentate, the rest cordato-amplexicaul acuminate.  
—*De Cand.*

*De Cand. Syst.* II. 588.

HAB. Cultivated.

FL. —?

Of this species there are 3 varieties; 1. OLEIFERA; 2. PABULARIA; 2. NAPO-BRASSICA. The latter, known in Europe as the *Swedish turnip*, and in this country as the *Turnip-rooted cabbage*, is commonly cultivated in our gardens. The leaves, as well as the root, are made use of as vegetables. They are more easily digested than either the cabbage or turnip.

## 3. *Brassica rapa.* *Turnip.*

Radical leaves lyrate destitute of a glaucous pollen setoso-scabrous, those of the stem nearly entire smooth.

*De Cand Syst.* II. 590.

HAB. Cultivated.

FL. —?

The Turnip is said to be a native of different parts of Europe. It is cultivated in this country, but seldom comes to perfection, unless sown in provision grounds, on land with a declivity, in the mountains. In such situations, they may be grown to a large size, and with a flavour not inferior to those of Europe. The Turnip is regarded as a very excellent vegetable, being pleasant and cooling to the taste, and gently aperient. De Candolle mentions that a decoction of turnips, sweetened with sugar, is an excellent remedy for *aphthæ*, and in *phthisical* cases.

IX. SINAPIS. *Mustard.*

Pod 2-valved (sometimes of 2 joints of which the upper one is without valves). Cotyledons conduplicate, ( $\odot >>$ ). Calyx patent.—*Brown.*

Herbaceous, rarely suffruticose, frequently biennial. Leaves usually lyrate, or inciso-dentate: racemes terminal; flowers yellow.—*Name*, from the Greek  $\sigmaιναισι$ .

1. *Sinapis lanceolata.* *West India Mustard.*

Glabrous, lower leaves sublyrate, upper ones lineari-lanceolate entire, pods with a conical seedless beak.

*Raphanus lanceolatus*, Willd. III. 562.—*Sinapis lanceolata*, De Cand. Syst. II. 611.

HAB. Common in the mountains of Port-Royal, &c.

FL. The early months of the year.

About 3 feet in height, erect; branches terete, glabrous, glaucescent, not unfrequently purpurecent. The lower leaves petiolate, nearly a foot in length, glabrous, nerved, and reticulato-venose, sublyrate with the terminal lobe large rounded and coarsely inciso-dentate; the lateral lobes about 4-paired, subopposite, coarsely toothed, except the innermost pair which are small and subentire; leaves at the middle of the stem petiolate, ovato-oblong, coarsely toothed; upper leaves lineari-, or oblongo-lanceolate, narrowing towards the base, entire. Racemes terminal: pedicels  $\frac{1}{2}$  an inch in length, filiform: flowers yellow. Silique patent, cylindraceo-subtetragonal, glabrous,  $1\frac{1}{2}$  inch in length, besides a subulate seedless beak,  $\frac{1}{4}$  th of an inch in length: seed small, brownish.

X. *Raphanus.* *Radish.*

Pod without valves. Cotyledons conduplicate, ( $\odot >>$ ). Calyx erect.—*Brown.*

*Name*, from  $\rhoαρavs$  a radish.

1. *Raphanus sativus.* *Garden Radish.*

Pods terete torose acuminate scarcely longer than the pedicels.—*De Cand.*

HAB. Cultivated.

FL. Throughout the year.

The common garden Radish is a native of China, Japan, and Western Asia. It has been cultivated for several centuries in the gardens of Europe. The roots are eaten raw as a salad.

2. (?) *Raphanus lanceolatus*. *West India Radish*.

Pods bilocular ventricose smooth, beak subtetragonal, leaves lanceolate, those of the stem subdentate at the apex.

*Willd.* III. 562.—*De Cand. Syst.* II. 669.

HAB. Plantain-Garden-River bay.

FL. February—May.

Herbaceous, a foot or more in height, erect: branches smooth, angulose, striated: leaves alternate, petiolate, lanceolate, rounded at the apex; those of the stem subdentate, of the branches entire; attenuated at the base, nerveless. Raceme terminal. Pedicels short, terete. Calyx 4-fid; divisions blunt. Petals 4, roundish, clawed. Stamens 6; anthers greenish-yellow. Style thickened towards the ovary: stigma truncated with the edge reflected. Silique upwards of an inch in length, bilocular, contracted between the seeds, tetragonal and beaked towards the extremity.

## ORDER XII. CAPPARIDEÆ.

Calycine sepals 4, either distinct, equal, or unequal; or cohering in a tube with the limb variable. Petals 4, cruciate, usually unguiculate and unequal. Stamens generally perigynous, very seldom tetradynamous, most frequently some high multiple of a quaternary number, definite, or indefinite. Disk hemispherical or elongated, generally glanduliferous. Ovary stalked: style none or filiform. Fruit either pod-shaped and dehiscent, or berried, 1-celled, very rarely 1-seeded, most frequently with 2 polyspermous placenta. Seeds generally reniform, exalbuminous: embryo incurved: cotyledons leafy, flattish.

Herbaceous plants, shrubs, and even trees, without true stipules, but sometimes with spines in their place: leaves alternate, simple or palmate.—The CAPPARIDEÆ resemble the preceding Order, in respect to the properties possessed by many of the species. The *Capers* are stimulant, antiscorbutic, and aperient; the bark of some of them is diuretic; and several species of CLEOME have the pungent taste of mustard. We



have not as yet succeeded in naturalising in our climate the common *Caper* tree (*C. SPINOSA*), a native of the South of Europe.

# I. GYNANDROPSIS.

Calycine sepals 4, patent. Petals 4. Disk elongated. Stamens 6, monadelphous around the disk, free at the apex. Silique stalked on the calyx, at the extremity of the disk.—*De Cand.*

## 1. *Gynandropsis pentaphylla.* *Five-leaved bastard Mustard.*

Subglabrous, the middle leaves 5-foliate, the lower and floral ones 3-foliate, leaflets subserrulated.

*Sloane*, I. 294.—*Cleome pentaphylla*, *Lun. Hort. Jam.* I. 68.  
—*G. pentaphylla*, *De Cand. Prod.* I. 238.

HAB. Common in dry situations.

FL. August—October.

About 2 feet in height, herbaceous: branches few, subsucculent towards their extremities. Leaflets somewhat spathulate, narrowing towards the base, bluntish at the apex, serrulated with the teeth terminating in a seta: petiole elongated, subterete, slightly channelled and hirsute above: petiolules short. Racemes terminal, simple, leafy: peduncle terete, subhirsute. Floral leaves 3-foliate, similar in shape to, but smaller than those of the branches. Pedicels an inch in length, terete, filiform, closely puberulous with minute capitato-glandulous hairs. Disk elongated. Sepals 4, lanceolate, spreading; 2 of them rather longer than the others. Petals subequal, clawed, with the border rotundo-spathulate, white with a slight tinge of purple. Filaments united and adherent to the elongated disk at the base: distinct at the apex, capillary, purple, spreading: anthers lineari-oblong, afterwards recurved. Ovary lineari-oblong, terete, densely papilloso-puberulous. Silique 3-4 inches long, strigoso-hispid: seeds numerous, reniform.

The lower flowers of the raceme are fertile; the upper ones are usually abortive.

This plant has a warm bitter taste. It is said to be a very wholesome green, and to be a preventative against belly-ache; but to render it palatable, it requires a long boiling, and the water to be frequently changed. The juice, either plain, or mixed with sweet oil, is a certain remedy for the ear-ache. It ought to be warmed previous to being used. A preparation may be made by beating up the young branches of the plant, with sweet oil, in a mortar.

## II. CLEOME.

Calycine sepals 4, patent, subequal. Petals 4. Disk subhemispherical. Stamens 6, rarely 4. Silique dehiscent sessile or stalked on the calyx.—*De Cand.*

*Name*, employed by a physician in the 4th century to designate a plant, which, like this, resembled mustard in its taste, and grew in moist places.

SECT. 1. *Pedicellaria*.

Disk fleshy, subglobose. Thecaphorum elongated.

1. *Cleome heptaphylla*. *Seven-leaved bastard Mustard*.

Herbaceous prickly hirsuto-viscose, leaves 5-7-foliate viscoso-pubescent, floral leaves sessile cordate, silique viscoso-pubescent longer than the thecaphorum.

*Sloane*, I. 194.—*Browne*, 373.—*C. spinosa*, *Jacq. Amer.* 190.

HAB. Common in waste places.

FL. Throughout the year.

About 4 feet in height, fruticose towards the base, terete, hirsute with hairs tipped with viscid glandules, prickly: prickles stipulary, short, thick, sharp, subulate. Leaves 5-7-foliate, pedate; leaflets shortly petiolulated, lanceolate, attenuated at both ends, hirsute along the midrib towards the base, otherwise pubescent and ciliated with viscoso-capitate hairs, pinnatifid: petiole terete, slightly channelled, occasionally prickly. Raceme terminal. Pedicels about an inch in length, terete, viscoso-hirsute, each furnished at the insertion with a small sessile cordate viscoso-pubescent floral leaf. Sepals 4, subunequal, linear-lanceolate, viscoso-pubescent, spreading. Petals with the limb oblongo-spathulate and white, and with the claw purple. Disk ovato-subglobose, unilateral: thecaphorum elongated, filiform; upwards of an inch in length, purple, subglabrous, with a few minute capitate hairs near the base. Filaments  $\frac{3}{4}$ ths of an inch in length, distinct, capillary, purple: anthers linear. Ovary linear, terete, densely and minutely glanduloso-puberulous: style scarcely any: stigma subcapitate. Silique terete, 3-4-inches in length, viscoso-puberulous with capitate hairs: seed numerous, small, reniform.

This is a wild rank weed, common in waste places, having neither beauty, nor any useful property to recommend it to our notice.



2. *Cleome pungens*. *Thorny bastard Mustard*.

Herbaceous prickly pubescenti-viscose, leaves 5-7-foliate glabrous, floral leaves sessile cordate, silique glabrous shorter than the thecaphorum.

*H. B. & Kunth, Nov. Sp. V. 85.*—*C. spinosa, Bot. Mag. t. 1640.*—*C. pungens, De Cand. Prod. I. 239.*

HAB. Dry waste places.

FL. Throughout the year.

There is so little difference between this and the preceding, that they may be regarded as varieties of the same species.

SECT. 2. *Siliquaria*.

Disk small. Thecaphorum short or none.

3. *Cleome procumbens*. *Dwarf bastard Mustard*.

Herbaceous glabrous procumbent, leaves simple lanceolato-linear, floral leaves generally shorter than the pedicels, siliques sessile terete subtorulose.

*Sloane, I. t. 123.*—*Sinapis, Browne, 273. No. 2.*—*C. procumbens, Jacq. Amer. 189. t. 120.*—*Swartz, Obs. 253.*

HAB. Common in dry pastures.

FL. After the May and October rains.

Herbaceous, 2-6 inches in length, procumbent, glabrous, branched. Leaves alternate, petiolate, lanceolate, acute, entire, glabrous, 7-8 lines in length. Flowers axillary, solitary, pedicelled, small, yellow: pedicels shorter than the leaves. Sepals lanceolate, acute, spreading. Petals oblong, shortly clawed, spreading, twice the length of the sepals. Stamens 6, equal, of nearly the length of the petals. Ovary oblong, compressed, acuminate: style short: stigma obtuse. Silique terete, subtorulose: seeds many, subrotundo-reniform.

4. \* *Cleome polygama*. *Polygamous bastard Mustard*.

Herbaceous glabrous, leaves petiolate, the lower ones simple, the rest 3-foliate, leaflets ovato-lanceolate acuminate subserrulated, siliques subsessile terete glabrous.—*De Cand.*

*Sloane, I. 194. t. 124. f. 1.*—*Browne, Jam. 272.*—*Willd. Sp. III. 565.*—*H. B. et Kunth. Syn. III. 142.*

HAB. Dry situations. Old Harbour market place.

FL. Towards the end of the year.

Erect, smooth, sparingly branched. Leaves on long petioles. Raceme long: the lower flowers fertile; the upper ones barren. Petals white. Stamens purple. Pod 3 inches long.

5. \* *Cleome Houstonis*. *Houston's Cleome*.

Herbaceous glanduloso-velutine, stipules and petioles spinescent, leaves 3-5-foliate, floral leaflets oval-oblong, siliques shortly stalked glanduloso-velutine.

*Brown, Hort. Kew.* IV. 131.

## III. CRATÆVA.

Calyx of 4 sepals. Petals 4 larger than the calyx. Stamens 8-28. Disk elongated or hemispherical. Berry stalked, thinly corticated, ovato-globose, pulpy within.

*Name*, from *Cratævas*, a Greek naturalist mentioned by *Hippocrates*.

Unarmed shrubby trees with 3-foliate leaves.

1. *Cratæva gynandra*. *Gynandrous Garlic-Pear-tree*.

Stamens 20-24 inserted on a cylindrical disk longer than the petals, berry ovoid, leaflets ovate acuminate.

*Sloane*, II. 170.—*Browne*, 246.—*Swartz*, *Obs.* 191.

*HAB.* Common in the plains.

*FL.* May.

A tree about 15 feet in height: branches terete, glabrous, marked with small oblong rimose white spots. Leaves towards the ends of the young branches, alternate, petiolate, 3-foliate; leaflets petiolulated, ovate, acuminate, (the lateral ones unequal at the base), entire, glabrous, subcoriaceous, delicately nerved: petiole terete. Inflorescence at first corymbose, but afterwards, from the elongation of the peduncle, racemose: peduncle angulose: pedicels an inch or more in length, received into a thickened cup, furnished with a spathulato-lanceolate bractea. Flowers numerous, rather large, purpurascens. Sepals of the calyx 4, ovate, with a transverse corrugated excrescence internally at the base, deciduous. Petals alternating with the sepals, 2, rarely 4, unequal, clawed, spathulate, white, the longest about  $\frac{1}{2}$  an inch in length. Stamens 20-24, an inch and a half in length, capillary, purpureous, inserted on the disk: anthers linear: pollen yellow. Pistil in the barren flowers imperfect; in the fertile conical, supported on a stipe which is at first short, but afterwards becomes elongated as the fruit forms. Berry size of a pigeon's egg, ovoid, 2-celled, many-seeded.

This is a very common tree in the plains. From its nauseous smell it has received the name of the *Garlic-Pear-tree*. It has a burning acrid taste, and the bark applied externally is said to produce vesication.

2. *Cratæva tapia*. *Round fruited Garlic-Pear-tree*.

Stamens 8-16 inserted on a cylindrical disk half the length of the petals and of the thecaphorum, berry globose, leaflets ovate acuminate unequal at the base.

*Plum. Gen. t. 21.—Pis. Bras. t. 69.—Malus Americanus trifolia, fructu pomi aurantii instar colorato, Comm. hort. I. 129. t. 67.—De Cand. Prod. I. 243.*

HAB. Spanish-Town road: Salt-ponds.

FL. May.

A tree about 20 feet in height. Leaflets broad-ovate, subacuminate. Raceme terminal, at first corymbose. Peduncles about 2 inches in length. Flowers purpurascens. Calycine sepals spreading, deciduous. Petals 4, about an inch in length, rounded at the apex, with the claw long. Stamens about 16, declinate, about 3 times the length of the petals. Stipe of the ovary length of the stamens: stigma sessile, capitate. Fruit globose, size of a small orange.

IV. CAPPARIS. *Caper-tree*.

Calyx 4-partite. Petals 4. Disk small. Thecaphorum slender. Stamens  $\infty$ . Silique subbaccate, stipitate.—*De Cand.*

Shrubs; rarely trees. Leaves simple. With exception of the common *Caper-tree* (CAPPARIS SPINOSA), the buds and unripe fruit of which are very much esteemed in Europe as a pickle, no other of the species produces any thing, that man has been capable of converting to satisfy his wants, or gratify his appetites.—*Name*, from the Arabic *Kabar*, from which the Greeks made *καππαρίς*.

1. *Capparis cynophallophora*. *Bottle-cod root*.

Leaves glabrous coriaceous oblong shortly petiolated, axillary glandule subglobose, peduncles few-flowered shorter than the leaf, silique long terete fleshy.

*Browne, 246. t. 27. f. 1.—Jacq. Amer. 158. t. 98.*

HAB. Common on the plains.

FL. After the rains, in May and October.

A tree-like shrub, about 8 feet in height: branches long, virgate, flexuose, subterete, glabrous. Leaves alternate, subdistichal, petiolate, oblong, obtuse, or slightly emarginate at the apex, rounded at the base, glabrous, subcoriaceous: petiole scarcely  $\frac{1}{2}$  an inch in length, terete, slightly channelled above. Axillary glandule small, subrotund, distilling from a minute

pore at the apex a pellucid clammy fluid. Peduncle axillary, of the same length as the petiole, subtetragonal, purplish, glanduliferous, few-flowered: pedicels articulated on the peduncle, terete, green. Flowers showy, white, fragrant. Sepals 4; the two outer the smallest; all of them roundish-concave, thickish, glabrous, during æstivation imbricated, with a small glandule at the base of each. Petals thrice the length of the sepals, obovate, rounded or emarginate at the apex, reflected, caducous. Stamens numerous, 2 inches in length, capillary, white, caducous. Alabastrum globose. Thecaphorum more than two inches in length, filiform, angulated, purple. Ovary oblong: stigma sessile, excavated. Silique about 6 inches in length, terete, glabrous, torose where the seeds are situated, fleshy, opening ere it quits its attachment to the stem, by two valves, which are gradually rolled back from the apex to the pedicel allowing the seeds successively to drop out: seeds many, reniform, in two rows, imbedded in a scarlet fleshy pulp.

This tree, according to Jacquin, is known among the French Creoles of Martinique, by the name of *POIS MABOUIA*, or *Devil's bean*. The root is large, yellow, fleshy, and the taste strongly resembles that of the *Horse-radish*. An infusion of it, has been recommended, as a specific in dropsy.

## 2. *Capparis ferruginea*. *Ferruginous Caper-tree*.

Leaves lanceolate acute petiolate subglabrous above paler and stellato-tomentulose beneath as also the branchlets, peduncles axillary racemoso-corymbose, stamens 8, berry subglobose.

*C. octandra*, *Jacq. Am.* 160. t. 100.—*Broune*, 247. t. 28. f. 1.  
—*C. ferruginea*, *Swartz, Obs.* 208.

HAB. Common along the sea-coast.

FL. March—May.

A shrubby tree, about 12 feet in height; branches compressed at their extremities, lepidoto-tomentulose, rufescent. Leaves petiolate, lanceolate, with the apex sharp, acute at the base, entire, subglabrous above, paler and stellato-tomentulose beneath. Peduncles axillary, subterminal, shorter than the leaves, incano-stellato-tomentulose, bearing several small white inodorous flowers in a corymb-like raceme: pedicles two-thirds of an inch in length, tomentulose. Sepals 4, deltoideo-lanceolate, acute spreading persistent, each furnished at the base with an erect tooth-like minutely puberulous viscid glandule. Petals 4, roundish, concave, slightly clawed, caducous. Stamens usually 8, erect, length of the corolla. Thecaphorum about one-third of an inch in length, terete, stellato-tomentulose. Ovary spherical: stigma sessile. Fruit shortly stalked, subrotund, size of the

very largest pea, externally albido-farinose, 2-valved, dehiscent: seeds few, reniform, compressed, black.

The nectar-like processes at the base of the calyx of this species, correspond with the *glandules* or *foveolæ* at base of the sepals, in the third section (*Cynophalla*), of this genus, as arranged by De Candolle.

## 2. \* *Capparis Breynia*. *Long-podded Caper-shrub*.

Leaves elliptic acuminate coriaceous petiolate glabrous above lepidose beneath as also the branchlets, peduncles racemoso-corymbose, alabastrum 4-sided, stamens 16, silique very long.

*Jacq. Amer.* 161. t. 103—*Swartz, Obs.* 210.

HAB. In thickets near the sea-shore.

FL. —?

An erect shrubby tree, 10 feet in height, branches flexuose, towards their extremities angulated, covered with minute ferruginous scales. Leaves alternate, petiolate, elliptic, acute or bluntish, very entire, glabrous and shining above covered with minute ferruginous scales beneath. Inflorescence subterminal. Flowers rather large, white, agreeably fragrant. Sepals 4, during æstivation valvular, ovate, with the margins subrevolute and somewhat prominent, with a small ovate glandule, alternating with the petals, at the base of each. Petals 4, twice the size of the sepals, tinged with purple, deciduous. Stamens long, slightly villous with pale red hairs: anthers incurved, yellow. Thecaphorum elongated. Silique about 9 inches in length, terete, subtorulose, tomentose, dehiscent: seeds many reniform.

According to some Botanists, this is considered as a variety of the following species. I doubt if it be a native of this Island.

## 4. *Capparis Jamaicensis*. *Jamaica Caper-shrub*.

Leaves oblong emarginate coriaceous petiolate glabrous and shining above cinereo-lepidose as also the petioles beneath, racemes few-flowered, stamens 20-22.

*Jacq. Am.* t. 101. 1

HAB. Road from Spanish-Town to Old-Harbour.

FL. March—April.

A shrub, about 10 feet in height: branches terete, towards their extremities angulose, ash-coloured, minutely lepidose. Leaves petiolate, oblong, emarginate at the apex, acute at the base, glabrous and shining above, cinereo-lepidose beneath: petioles



cinereo-lepidose. Racemes axillary, and terminal, sub-simple, few-flowered: flowers pedicelled, at first white, but afterwards purple: pedicels tetragonal, lepidose. Calyx of 4 sepals, as in *C. Breynia*. Petals oval, externally lepidose, about one-third longer than the sepals. Stamens 20-22, with the filaments villous at the base: anthers yellow. Thecaphorum an inch in length. Ovary terete, lepidose.

5. *Capparis torulosa*. *Torulose Caper-shrub*.

Leaves ovato-lanceolate coriaceous petiolate smooth above lepidose beneath as also the branchlets, peduncles few-flowered racemoso-corymbose, stamens 28, silique very long.—*De Cand*.

*Swartz, Prod.* 81.—*Fl. Ind. Occ.* 932.

HAB. Hilly Situations. Port-Royal mountains.

FL. August.

A shrub, 6-10 feet in height: branchlets angulose, lepidotopunctate, of a ferruginous colour. Leaves alternate, petiolate, ovato-lanceolate, entire, smooth above, covered with minute argenteo-ferruginous scales beneath. Flowers at the ends of the branchlets, about six together, corymbose, white, rather large: peduncles tetragonal and sulcated, lepidose, generally 2-flowered. Calycine sepals ovate, acute, externally ferrugineo-lepidose. Petals roundish-oval, slightly scaly externally; internally purple. Stamens 4 times the length of the petals: filaments purple, hairy at the base: anthers yellow. Style long, white: stigma truncated, lepidose. Silique 10-12 inches in length, pedicelled, terete, subglabrous, torulose, 2-valved.

7. \* *Capparis longifolia*. *Long-leaved Caper-shrub*.

Leaves linear acuminate shortly petiolate glabrous above lepidose beneath as also the branchlets.

*Pluk. Phytog.* t. 327. f. 6.—*Swartz, Prod.* 81.

HAB. Common in situations where the *C. CYNOPHALLOPHORA* grows.

FL. — ?

I consider this to be merely the early barren shoots of the *C. CYNOPHALLOPHORA*. It is very common along the sea-shore, and I never have observed it in flower.



## ORDER XIV. BIXINEÆ.

Calycine sepals 4–7, either distinct or cohering at the base, with the æstivation imbricated. Petals 5, or none. Stamens indefinite, distinct, inserted on the circumference of a hypogynous annular disk. Ovary superior, sessile, 1-celled: style 1, undivided or 2–4-fid. Fruit capsular or berried, 1-celled, many-seeded. Seeds attached to parietal placentæ, enveloped in pulp: embryo erect.

The Arnotta tribe is composed of trees or shrubs; with leaves simple, alternate, and entire; stipules deciduous; peduncles axillary, 1-∞-flowered, and bracteolated. They are all natives of the hotter parts of America, or of the Mauritius. *Bixa*, is the only genus, possessing any remarkable properties.

I. *BIXA*. *Arnotta*.

Calycine sepals 5, orbiculate, deciduous. Petals 5, obovate. Stamens ∞, hypogynous, free: anthers bilocular. Ovary one-celled: style 1, long, generally ligulato-compressed at the apex. Capsule one-celled, two-valved; valves externally setoso-hispid; internally with a linear placenta in the centre. Seeds 8–10 to each placenta, covered with a coloured farinaceous pulp.\*

Low trees, indigenous to the warmer regions of America. —*Bixa* is the name of the common species, on that continent.

1. *Bixa orellana*. *Heart-leaved Arnotta*.

Leaves on both sides glabrous.

*Sloane, Hist.* II. 52. t. 181. f. 2.—*Jacq. Hort. Sch.* IV. t. 483.

—*Meyer, Primitiæ Fl. Esseq.* 202.

HAB Banks of rivers.

FL. Autumn.

A low tree, handsome in its port, with large cordate acuminate glabrous leaves. Flowers rather large, showy, rose-coloured,

\* Albumen fleshy or very thin: embryo included, curved or nearly straight: cotyledons fleshy: radicle turned to the hilum.—*Gartn. de Fruct.* I. t. 61.

Calycine sepals ferruginous, pubescent, deciduous; a tubercle at the base of each sepal, persistent, large, roundish, coriaceous, greenish. Petals larger than the sepals. Filaments numerous, yellow at the base, purplish towards the apex. Ovary ovate, covered with setules: style length of the stamens, incurvated and compressed towards the stigma: stigma 2-lipped.

The variety of this species known as *B. ALBA*, has recently been introduced, and is cultivated in some of our gardens. It is distinguished by the leaves being more attenuated at the apex, the flowers being nearly white, and the capsule more elongated.

It is from the pulp, which covers the seeds of this tree, that the substance known by the names of *Arnotta* or *Annotta* in England, and *Roucou* in France is procured. It is collected by pouring boiling water, on the seeds, in any convenient vessel; after stirring the whole, the water, with the farina suspended in it, is poured off; and this is repeated till the naked seeds are left. The water, after allowing it to stand for some time, is then to be poured off clear, leaving the *Arnotta* which has settled at the bottom. The addition of an acid is said to hasten the process. The sediment is afterwards to be placed in shallow vessels and dried by evaporation in the shade. When it has acquired a proper consistence, it is to be made into cakes or balls: after which it is to be thoroughly dried till hard, when it is in a fit state to be sent to market.

*Arnotto* is of a resinous nature, and dissolves more completely in alcohol than in water. When prepared for market, it is moderately hard, of a brown colour externally, and dull red within. It is occasionally imported in cakes of 2 or 3 pounds weight, of the consistence of paste, wrapped up in large flag leaves, and packed in casks. The roll *Arnotto* is much harder, and of a very superior quality, containing a larger proportion of the colouring matter. It was formerly employed, in dyeing silk, to produce the colour called *Aurora*. As the addition of an alkali increases its solubility, it is the practice, when used in dyeing, to mix it with at least its own weight of potash. It is now however but seldom employed as a dye in Great Britain.\* The Indians mix it with oil, or with lime-juice and a gum, to make the crimson paint with which they anoint their bodies, not so much for the purpose of ornament, as to protect them from the attacks of insects. It is said to be esteemed by painters as a colour. In Gloucestershire it is employed under the name of *cheese colouring*, to give a yellowish-orange tint to cheese; and in Holland, to butter. It has never had any great character as a medicine. It is a gentle purgative, and a light stomachic: it has been employed in dysentery, and as an antidote for the bitter Cassada. The Spaniards use it in their chocolate and

\* The liquid sold under the name of *Scott's Nankin dye*, is nothing but a solution of *Arnotto* and *potash* in water.

soups, to heighten the flavour and to give a rich agreeable colour. In Jamaica, a liquid preparation is usually kept for culinary purposes, made, by boiling the pulp, diffused in water, with sugar and salt, to the consistence of cream, which, if put into well-corked bottles, will keep for several years.\*

The bark of the tree is well adapted for making cordage : and pieces of the wood are employed by the Indians to procure fire by friction.

## II. LÆTIA.

Calyx 5-partite, coloured, marescent. Petals 4-5 or none. Stamens indefinite in number, hypogynous : anthers roundish. Style 1 : stigma capitate. Capsule fleshy, 3-5 valved, globose, acuminate with the style : seeds very many, with an arillated pulpy pelticle.—*De Cand.*

Named in honour of John de Laet of Antwerp.

### 1. \* Lætia? Guidonia. *Terminal-flowered Lætia.*

Flowers apetalous, peduncles terminal 1-flowered, leaves oblong acuminate pubescent.—*De Cand.*

Guidonia, *Browne, Jam.* 249. t. 29. f. 4.—*L. Guidonia*, *Swartz, Prod.* 83.—*Samyda icosandra, Fl. Ind. Occ. ejusd.* 1962.

HAB. Mountains near the sea, at the west end of the Island.—*Sw.*

FL.— ?

A tree, 15-20 feet in height. Leaves alternate, towards the ends of the branches, oblong, acuminate, serrated, nerved, pubescent : petiole terete. Peduncles terminal, several together, an inch in length, one-flowered, pubescent. Squamules ovate, ferruginous, hirsute, at the base of the peduncles. Flowers white. Calycine sepals 5, rarely 4, concave, persistenti-marescent. Petals 0. The stamens, according to Swartz, are 20 in number, and are inserted on a very short cup-shaped nectary, with twenty short truncated yellow bodies alternating with them. Ovary subrotund, green, slightly villous : style very short or 0 : stigma capitate. Capsule size of a nutmeg, fleshy, subrotund, umbilicated with the persistent stigma, obtusely 3-gonal, 1-celled, 3-valved, many-seeded, green, pubescent : seeds many, oblong, nestling in a pulpy arillus.

\* The average importation of Arnotta into Great Britain, for five years, terminating in 1833, was, 1,074 casks, each weighing from three to four and a half cwt.—*Vegetable Substances : Materials for Manufactures.* Lond. 1833.

I have not yet had an opportunity of examining this plant. According to the Hortus Jamaïcensis, it is a fine timber-wood.

2. *Lætia Thamnia*. *Axillary-flowered Lætia*.

Flowers apetalous, peduncles axillary usually 3-flowered subdivided, leaves ovato-oblong acuminate obscurely crenulated shining.

*Browne, Jam. 245. t. 25. f. 2.—Swartz, Prod. 83.—Fl. Ind. Occ. 950.*

HAB. Common in limestone districts. Lower hills of St Andrew's, St David's, and Port-Royal.

FL. May—July.

A shrubby tree, about 8 feet in height: branches subflexuose, glabrous, towards their extremities compressed. Leaves alternate, petiolate, oblong, acuminate with the apex obtuse, very indistinctly crenulated, venose, glabrous, shining, "when held to the light pertuse" (*Sw.*): petiole short, terete, slightly channelled. Peduncles axillary, solitary, an inch in length, 3-chotomously divided, bearing 3 pedicelled flowers. Flowers size of those of the common myrtle, white with a tinge of rose-colour. Sepals petaloid, roundish, concave, externally puberulous. Petals 0. Filaments many, subulate, erect, pubescent: anthers roundish, compressed, yellow. Disk villous. Ovary spherical, pentagonal, incano-villous: style short, thick: stigma obtuse. Capsule spherical, size of a lime, fleshy, cinereo-velutine, 1-celled, 5-valved, many-seeded: valves fleshy, "in time revolute" (*Sw.*). Seeds arillated, attached to six prominent parietal longitudinal wedge-shaped purple fleshy placentæ.

A very common shrub. It is sometimes called *Wattle-wood* by the Negroes, from their employing the long branches in constructing their houses.

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## ORDER XVI. VIOLARIÆ

Sepals 5. Petals 5, hypogynous, equal or unequal, with an obliquely convolute æstivation. Stamens 5, alternate with the petals, occasionally opposite, inserted on a hypogynous disk: anthers 2-locular, bursting inwards, either separate or cohering: filaments dilated, elongated beyond the anthers. Ovary 1-celled: style 1, usually declinate, with an oblique

hooded stigma. Capsule 3-valved: placenta in the axis. Seeds often with a swelling at the base: embryo straight, erect, in the axis of the fleshy albumen.—*Lindl. abbr.*

Very few of the Violet tribe are natives of tropical countries. The roots of all the species, especially *IONIDIUM IPECACUANHA*, *I. INDECORUM*, and *I. POAYA*, are more or less emetic. That of *I. PARVIFLORUM*, found in the neighbourhood of Bogota, is said to be a specific for Cocoe-bay, or the South American leprosy. The common *heart's ease*, *V. TRICOLOR*, has become naturalized, and grows wild in some parts of the mountains.

### I. SAUVAGESIA.

Calycine sepals 5, with æstivation imbricated. Petals 5, equal, alternate with the sepals, hypogynous, deciduous, with the æstivation generally twisted; a filamentous crown situated before the petals, and adnate to them at the base, with the filaments composing it  $\infty$ , capillary, clavæform at the apex. Stamens 5, fertile, opposite to the petals, alternating with 5 petaliform scales: filaments subulate: anthers adnate, oblong, bursting with a double lateral slit towards the apex. Ovary substipitate: style and stigma simple. Capsule ovato-triquetrous, 1-celled, 3-valved: seeds minute.

Small herbaceous plants.—*Named* in honour of Jacques Boissier de Sauvages, a French Botanist, author of a Flora of Montpellier, and other works.

#### 1. *Sauvagesia erecta.* *Erect Sauvagesia.*

Stem suberect or procumbent branched, leaves ovato-lanceolate serrated, pedicels 1–2–3 axillary, sepals aristato-acuminate, petals obovate apiculated.

*Browne, Jam.* 179. t. 12. f. 2.—*Jacq. Amer.* 77. t. 51. f. 3.—*Aubl. Gui.* II. 251. t. 100. f. 4.

HAB. On the North-side of the Island in damp elevated situations.

FL. Spring.

Root fibrous. Stem herbaceous, suberect, 6–9 inches in height, branched. Leaves alternate, ovato-lanceolate, serrated, glabrous, about an inch in length: petiole short. Stipules lanceolate, aristato-acuminate, setoso-ciliated. Pedicels 1–3 to



gether, axillary, half the length of the leaf, erect during the period of flowering, deflected when the fruit begins to form. Flowers white.

This small plant is common in the mountain districts of Portland. It is very mucilaginous, and the infusion has been used in Brazil for complaints of the eye, in Peru for dysentery, and, in some of the West India islands, for irritability of the bladder.

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## ORDER XVIII.—POLYGALÆ.

Calycine sepals 5, imbricated during æstivation; the two interior sepals generally petaliform, the three exterior smaller. Petals 3-4, hypogynous, more or less connected with the tube of the stamens, rarely distinct. Filaments united to the petals, monadelphous, divided at the apex into two opposite phalanges: anthers 8, unilocular, inserted at the base, dehiscent at the apex by means of pores. Ovary 1, free, bilocular, rarely uni- or tri-locular: style 1, incurved: stigma infundibuliform or 2-lobed. Pericarp capsular or drupaceous, bilocular, or by abortion unilocular, the valves giving off the septum from the middle: seeds solitary, pendulous, frequently carunculato-arillated at the base, sometimes pilose or comose: embryo straight, plane; in some, central in a fleshy albumen; in others (more rarely) exalbuminose.

Herbaceous or shrubby plants: leaves in many alternate, articulated on the stem, entire: flowers racemose. The bark and root are bitter, and the latter yields a milky juice. That of the *KRAMERIA TRIANDRA*, known by the name of *rattany* or *ratanhia* root, is employed to adulterate Port wine, and is largely imported into England from Chili and Peru for that purpose. The root of the *POLYGALA SENEGA*, under the name of *Virginian snake-root* has long been esteemed as a remedy in many diseases. The Yallhoy of Peru (the bark of the *MONNINA POLYSTACHYA*) is said to be useful in dysentery. The plants belonging to the Milkwort tribe are in general interesting from their beauty; and those, which are natives of this Island, are by no means exceptions.



I. POLYGALA. *Milkwort.*

Calyceine sepals 5, persistent ; the two inner wing-shaped. Petals 3-5, connected with the tube of the stamens ; the lowest one keel-shaped. Capsule compressed, elliptic, obovate or obcordate. Seeds pubescent : hilum carunculated, destitute of a tuft.—*De Cand. abbr.*

*Name*, from πολυ much, and γαλα milk ; from the ancients, according to Dioscorides, having an idea, that the common milkwort had the property of exciting the secretion of milk.

1. *Polygala paniculata.* *Panicked Milkwort.*

Racemes subspliked rather lax elongated peduncled, wings ovali-oblong scarcely longer than the capsule, leaves sparse linear acute, stem erect very much branched.

*Swartz, Obs.* 272. t. 6. f. 2.—*Browne*, 287.

HAB. Common in mountain pastures.

FL. The cooler months of the year.

Herbaceous, erect, 8-12 inches in height, terete, to the glass puberulous with most minute capitate hairs : branches numerous, subdivided, leafy. Leaves scattered, subpetiolate, an inch in length, lineari-lanceolate, acute, subentire, glabrous, to the glass punctulated. Racemes subterminal, erect, many flowered, 3-4 inches long : peduncle angulose, to the glass puberulous with capitate hairs. Flowers purple, on short terete purplish pedicels, nodding. Sepals 5 ; the 3 outer ones small, greenish with a purple tinge : the 2 inner oblong, white. Petals 3 ; the inferior petal greenish, clawed, truncated and multifido-cristate, with 10 long subulate spreading, at first purple, afterwards white teeth, at the apex. Stamens 8 : filaments short, monadelphous at the base, accrete to the wings : anthers small, globose, yellow. Ovary compressed, obcordate ; style erect, thickened and incurved towards the stigma, which is 2-lipped. Capsule oblong, emarginate at both ends, compressed, 2-celled, opening at the sides, 2-seeded : seeds oblong, brown, hairy, to the glass echinated.

An interesting and beautiful inhabitant of our mountain pastures. Its properties are said to be sudorific and diuretic, and it may be administered in decoction or infusion.

2. *Polygala mucronata, Yellow-flowered Milk-wort.*

Flowers beardless, racemes terminal, leaves lanceo-

late mucronate pubescent beneath, stem subsimple pubescent.

HAB. Little-Hope Pastures, St Andrew's.

FL. August—September.

Root fibrous. Stem herbaceous, about 8 inches in height, erect, terete, striated, pubescent, scarcely branched. Leaves alternate, petiolate, lineari-lanceolate, mucronate, entire, puberulous above, pubescent beneath. Raceme terminal, length of the leaves: peduncle angulose, puberulous. Flowers  $\infty$ , of a pale yellow with a tinge of purple, shortly pedicelled. Calycine sepals externally puberulous; the upper sepal lanceolate; the two lower ones cohering for half their length; the two lateral ones lato-falciform, veined, marked with a white membranaceous spot, persistent. Inferior petal concave at the apex, beardless to the glass; lateral petals expanded at the apex. Stamens submonadelphous: filaments white; anthers yellow. Capsule 2-celled, 2-seeded, compressed, emarginate, smooth, partly covered with the persistent lateral sepals: seeds oblong, pubescent, with the hilum prominent and carunculated.

This plant is decidedly an annual. It may therefore be different from the *P. mucronata* of Willdenow, III. 888. which is described as shrubby. It is an obscure unattractive plant, which may account for its having hitherto escaped notice as a native of this Island.

## II. BADERIA.

Calycine sepals 5, deciduous, subequal. Petals 3, slightly united at the base, with the middle one concave and beardless. Stamens 8, monadelphous. Capsule compressed, obcordate, bilocular, sulcated at the margin. Seeds glabrous with a large oily arillus filling the upper part of the locule.—*De Cand.*

American suffruticose plants.

### 1. *Badiera diversifolia*. *Smooth-leaved Badiera*.

Racemes short axillary, leaves ovali-oblong acuminate at both ends.

*Polygala diversifolia*, Linn. Am. II. 140.—Browne, Jam.t. 5. f. 3. 4.

HAB. Road from Flamstead to Mt Henry, Port-Royal. Opposite Prospect-hill, St. Andrew's. St Thomas in the Vale.

FL. November—January.

A tree about 15 feet in height: branches terete, towards their extremities puberulous. Leaves two inches long, and

scarcely more than half an inch in breadth, alternate, petiolate, ovato-lanceolate, acuminate with the apex blunt, acute at the base, entire, coriaceous, glabrous, shining, nerveless: petiole short, puberulous. Racemes axillary, solitary: peduncle shorter than the petiole: flowers rather small, white, shortly pedicelled. Calycine sepals 5, imbricated during æstivation, unequal, united at the base: the 3 outer sepals small, ovate, acute; the 2 inner larger, orbiculate, concave. The two upper petals pubescent, ciliated; the lower one concave at the apex, ciliated, green. Stamens monadelphous: anthers white. Ovary stipitate, orbiculate, compressed, slightly puberulous: style erect: stigma blunt. Capsule obcordate, glabrous, 2-seeded; seed oval, arillated.

### III. SECURIDACA.

Calycine sepals 5, with the 2 inner ones petaliform. Petals 5, slightly connected at the base; 3 of them united into a 3-lobed keel; the other 2 oblong. Stamens 8, diadelphous. Capsule ovate, indehiscent, one-celled, expanded at the apex into a leaf-like wing. Seed pendulous from the apex of the cell: albumen none.—*De Cand.*

Suffruticose plants, with alternate leaves, of an ovate or oblong figure, and with the flowers racemose.—*Name*, derived from the Latin, *SECURIS* a *hatchet*, in allusion to the form of the pod.

#### 1. *Securidaca virgata*. *Purple Securidaca*.

Glabrous, stem sarmentose, branches virgate, leaves elliptic rounded at the apex subacute at the base, racemes terminal, wing of the capsule rounded.

*Swartz, Fl. Ind. Occ.* III. 1231.—*Browne*, 287.—*Plum.* t. 248. f. 1.

HAB. Common.

FL. November—February.

Ascending to a considerable height, supporting itself on neighbouring trees and shrubs: branches alternate, divaricating, long and twiggy, terete, glabrous. Leaves  $1\frac{1}{2}$ –2 inches in length, elliptic, very obtuse at the apex, subacute at the base, occasionally subemarginate, concave beneath, puberulous to the glass on both sides, obscurely nerved: petiole about 3 lines in length, and, like the extremities of the branches, puberulous. Racemes terminal, subdivided: branches distichally arranged, subsimple, many-flowered: pedicels nearly an inch in length, filiform, coloured, puberulous, 1-flowered, articulated on a prominent excavated tubercle on the common peduncle. Flowers

purple, variegated with yellow, very showy. The 3 outer sepals small, roundish, concave, coloured, externally puberulous: the 2 inner petaloid, forming the most showy part of the flower, clawed, obcordate. The 3 lower petals united into a 3-fid keel, with the central lobe the smallest, ciliated, variegated with yellow: the two upper petals small, oblong, gibbous at the base, obtuse at the apex, yellow. Stamens 8, monadelphous, with a fissure in the tube opposite to the standard, and villosa-ciliated along its margin: anthers small. Ovary roundish, compressed, gibbous and sericeo-puberulous on one side: style length of the stamens, thick, curved: stigma compressed, sub-bilobed. Capsule 1-seeded.

This is a very beautiful shrub. Swartz states that the flowers have the smell of the *sweet violet*, *VIOLA ODORATA*.

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## ORDER XXII. CARYOPHYLLÆ.

Calycine sepals 4 or (more frequently) 5, free or united into a 4-5 toothed tube. Petals corresponding in number, inserted on a hypogynous disk, alternating with the sepals, clawed, with the limb entire or bifid, seldom awanting. Stamens  $2^{\text{ce}}$  the number of the petals, inserted on the disk; one half of them alternating with the petals and more precocious; the other half opposite and coalescing with them at the base: filaments subulate, in some species submonadelphous: anthers bilocular, bi-rimose. Ovary inserted on the summit of the disk, 2-5 valved, with a corresponding number of styles: styles clavate, distinct from the base, stigmatose and papillose on the inner surface. Capsule 2-5 valved, united at the base, dehiscent at the apex. Seeds  $\infty$  (very seldom few or defined in number): albumen farinose: embryo in general peripheral, more or less incurved, very rarely straight or central: radicle turned towards the hilum.

The plants belonging to this tribe are herbaceous or suffrutescent: stems nodose: leaves uniformly opposite, often connate, entire: flowers terminal.

I. SILENE. *Catch-fly.*

Calyx tubular, often ventricose, 5-toothed. Petals 5, clawed, mostly crowned at the mouth, with the limb generally notched or bifid. Capsule 3-celled, 6-toothed, many seeded.—*Hooker.*

*Name*, supposed to be derived from *σάλον saliva*, in allusion to the vivid moisture on the stalks of many of the species: hence also the English appellation of *Catch-fly*.

1. *Silene quinquevulnera.* *Variegated Catch-fly.*

Pubescent, stem ramose, leaves lanceolate, the lower ones obtuse, spike secund, calyx very villous beaked with short teeth, border of the petals subrotund, appendices bicuspidate.—*De Cand.*

*Smith, Engl. Bot.* t. 86.—*De Cand. Prod.* I. 372.

HAB. Neighbourhood of Clifton-Mount.

FL. July.

The peculiarities of this plant, as naturalized in this climate, are, that the petals are not unfrequently 4 in number, and the pubescence nearly approaches to villosity. It is very common in the neighbourhood of St Catherine's Peak, growing along the sides of the roads. It has, I have no doubt, escaped from the garden established, many years ago, by the late Mr Matthew Wallen at Coldspring. This plant is a native of Spain and France, and is to be found in two situations in England. It is frequently cultivated in the gardens of Europe. It derives its Latin specific name, from the deep red spot on each of the petals, resembling a drop of blood.

## II. MOLLUGO.

Calyx 5-partite. Petals 0. Stamens 3-5. Styles 3. Capsule 3-valved, 3-celled, many-seeded.—*De Cand.*

Herbaceous plants; leaves whorled, nearly opposite. Flowers solitary, or two together, or umbellated.—*MOLLUGO*, was the name given to a plant, which bears some resemblance to the following species, in its whorled leaves and inconspicuous appearance.

1. *Mollugo verticillata.* *Whorled African Chick-weed.*

Leaves whorled unequal lineari-lanceolate or obo-



vato-wedged shaped apiculated, stem procumbent dichotomous, peduncles 1-flowered.

*Roem. et Schult. Syst. II. 871.—Pluk. Phyt. IV. t. 332. f. 5.*

HAB. Dry sandy situations.

FL. After rains.

Stem procumbent, terete, glabrous, jointed. Leaves 6–7 in a whorl, subsessile; the larger leaves lineari-lanceolate; the smaller obovato-cuneate, glabrous. Pedicels 4–5 together, axillary, 1-flowered, scarcely the length of the leaf. Calyx externally green; internally white; sepals oval, 3-nerved. Stamens 3, shorter than the sepals, appressed to the ovary: anthers white. Ovary globose, 3-grooved, yellow: styles 3, spreading. Capsule ovate, 3-celled: seeds subreniform, purple.

## 2. *Mollugo bellidifolia.* *Daisy-leaved Chickweed.*

Stem somewhat erect leafless, leaves radical ovato-spathulate attenuated at the base to form the petiole, flowers paniced.—*De Cand.*

*Pharnaceum spathulatum, Swartz, Fl. Ind. Occ. I. 568.—Plum. Amer. t. 21. f. 1.—Sloane, I. t. 129. f. 2.*

HAB. Sandy soils.

FL. After rains.

Leaves radical, entire, glabrous, decurrent on each side along the petiole. Peduncles several from the same root, filiform, dividing above the middle; branches subdivided, at length capillary. Flowers minute, whitish. Calycine divisions green and 3-nerved externally, white internally. Stamens 5, length of the calyx, contiguous to the ovary: anthers white. Ovary subglobose, obtusely 3-gonal: styles 3: stigmata acute. Capsule ovate: seeds 5–6 in each cell, compresso-spherical, minutely granulose and marked with lines.

## III. DRYMARIA. *West India Chickweed.*

Calyx 5-partite. Petals 5, bifid. Stamens 2–3–5. Styles 3. Capsule 3-valved to the base, 5–∞ seeded. Embryo in the periphery, subannular.—*De Cand.*

### 1. *Drymaria diandra.* *Small-leaved Chickweed.*

Stem and branches minutely puberulous with capitate-glandulose viscid hairs, leaves subrotund apiculato-mucronate, flowers diandrous, capsule 5-seeded.

*Holosteum diandrum, Swartz, Prod. 27. t. 7.—Fl. Ind. Occ. 221.—Roem. et Schult. II. 857.—Drymaria diandra, De Cand. Prod. I. 393.*

HAB. Common in dry stony places: on walls.

FL. Throughout the year.

Roots fibrous. Stem branching at the root: branches procumbent, afterwards ascending, dichotomously subdivided, 4-agonal, puberulous with glanduloso-capitate hairs. Leaves opposite, shortly petiolate, subrotund, apiculated, subentire, 3-nerved, delicately reticulato-venose, minutely puberulous to the glass. Stipules multifido-ciliated. Flower-branchlets bifurcating with the leaf-bearing branches: common peduncle usually about 3 inches long, bifurcating, viscid with capitate-glandulose hairs: a pair of small lanceolate bractees at the divisions of the panicle. Flowers small, shortly pedicelled. Sepals 5, lanceolate, acute. Petals rather shorter than the sepals, deeply bipartite. Stamens 2, incumbent. Ovary globose: styles 3, short, patent. Capsule ovate, 3-gonal, 3-valved to the base, 1-celled, 5-seeded: seeds annuloso-reniform, minutely and closely granulose: embryo peripheral.

## 2. *Drymaria cordata*. *Heart-leaved Drymaria*.

Stem and leaves glabrous subrotund apiculated obsoletely cordate at the base, peduncles elongated dichotomously subdivided many-flowered, calyx glabrous longer than the petals, ovaries 7-10-seeded.

*Sloane*, I. 203.—*Browne*, 139.—*Holosteum cordatum*, *Lam. Ill.* t. 51. f. 2.—*Drymaria cordata*, *De Cand. Prod.* I. 395.—*H. B. et Kunth*, VI. 23.

HAB. Rocky places in the mountains.

FL. Throughout the year.

Herbaceous, at the base procumbent, afterwards ascending dichotomously branched, terete, glabrous. Leaves 3-nerved. Stipules lacinulato-fimbriated. Peduncle axillary, elongated, dichotomously subdivided, with a pair of small lanceolate bractees at the divisions: pedicels short, 1-flowered, covered with a minute snow-white pubescence. Flowers small collected at the ends of the branchlets of the panicle. Sepals 5, lanceolate. Petals shorter than the sepals, bipartite nearly to the base. Stamens 3—rarely 4, shorter than the petals: anthers bicorpuscular, inserted on opposite sides of the extremity of the filament. Ovary globose, 3-gonal: styles 3, rather short, spreading. Capsule oval, 3-gonal, 3-valved to the base, 1-celled, 8-seeded: seeds subreniform, minutely granulose under the glass.

This species differs from the preceding, in the leaves being larger and more succulent, perfectly glabrous, and prominently 3-nerved, and the flower-stalks being free of any viscid pubescence. It is only found in mountain districts.

IV. STELLARIA. *Stitchwort.*

Calyx of 5 sepals. Petals 5, deeply cloven. Stamens 10, or by abortion 3-5-8. Styles 3. Capsule 1-celled, 6-valved at the apex,  $\infty$ -seeded.

*Name*, from STELLA a star; because the petals are spread out in a stellated manner.

1. *Stellaria media.* *Common Chickweed.*

Leaves ovate or in a few lanceolato-ovate and attenuated at the base, stems procumbent with an alternate line of hairs on one side, stamens 5-10, capsules deeply 6-valved.

*Engl. Bot. t. 537.*—*Hooker, Fl. Scot. I. 135.*

HAB. Roadsides and Coffee-pieces in St Andrew's and Port-Royal mountains.

FL. Throughout the year.

Branching near the root: branches procumbent, tetragonal, with an alternate line of hairs on one of the sides. Leaves mucronate at the apex, entire, ciliated especially near the base, tender. Peduncles axillary or interpetiolar, solitary, 1-flowered, hairy, about an inch long. Sepals persistent, externally hairy. Petals deciduous, shorter than the sepals. Stamens 5, shorter than the petals, inserted on a small greenish glandule: anthers purple.

This plant is originally a native of Europe. It is said, never to be found, except in rich friable soils in a state of culture. It is a good pot-herb, and the seeds and flower-buds are, in Europe, favourite food of finches and other small birds.

V. ARENARIA. *Sandwort.*

Calyx of 5 sepals. Petals 5, entire. Stamens 10, or fewer by abortion. Styles 3. Capsule 1-celled, 6-3-valved at the apex,  $\infty$ -seeded.—*De Cand.*

*Name*, from ARENA sand: the greater number of the species growing in sandy situations.

1. *Arenaria diffusa.* *Spreading Sandwort.*

Stem elongated branched procumbent, leaves sessile broad-lanceolate acute puberulous, petals of nearly the same length but broader than the sepals.

HAB. Common in the St Andrew's, Port-Royal, and St David's mountains.

FL. Throughout the year.

Stem herbaceous, slender, filiform, one to several feet in length, dichotomously branched, procumbent, pubescent with dense curled short hairs. Leaves opposite, broad lanceolate, attenuated at the base (so as to render the leaf subsessile,) mucronate, entire, minutely puberulous. Peduncle axillary, solitary, 1-flowered, longer than the leaf, filiform, puberulous. Sepals green, membranaceo-margined, lanceolate, externally to the glass puberulous. Petals 5, of the same length as, but somewhat broader, than the sepals, oblong. Stamens 10, length of the petals, hypogynous: anthers globose, white. Ovary spherical: styles 3, spreading: stigmata puberulo-papillose. Capsule 1-celled, 6-valved at the apex: seeds numerous, compressed.

This is a very common plant in the above localities, and is to be found on every bank. It is remarkable that it should have hitherto escaped notice in this Island. It appears, if I may judge from specimens in Sir William Hooker's Herbarium, to be also a native of North America, having been noticed by Elliot, in his Flora of South Carolina and Georgia, and collected by Drummond in the neighbourhood of New Orleans. It is singular that I should have given ten years ago the same specific designation, which I now find it bears in the work of Mr Elliot.

## VI. *Cerastium. Mouse-eared Chickweed.*

Calyx 5-partite. Petals 5, bifid. Stamens 10. Styles 5. Capsule 1-celled, cylindrical or globose, dehiscent at the apex with 10 teeth.

Name, *νεγας α horn*, from the capsules of many of the species being long and curved.

### 1. *Cerastium spathulatum. Spathulate-leaved Chickweed.*

Stem subsimple slightly villous, leaves hairy, the lower ones obovato-spathulate petiolate, those of the stem subovate, flowers glomerate.

*Bertero, De Cand. Prod. I. 416.*

HAB. Neighbourhood of St Catherine's Peak.

FL. Warmer months.

Root fibrous. Stem herbaceous, occasionally simple, at other times branched, somewhat decumbent at the base, slightly compressed, purpurascens. Leaves opposite: lower ones spathulate, rounded and retuse at the apex, entire, hairy; the upper ones sessile, ovate, blunt rounded at the base, hairy, par-

allely and longitudinally (8-) nerved. Inflorescence terminal, of two umbellets, with a solitary pedicelled flower at their division: peduncle terete, pubescent with capitato-glandulose hairs: umbellet of 3-5 shortly pedicelled white flowers: bractæ ovato-lanceolate, leaflike. Sepals 5, lanceolate, membranaceo-margined, externally pubescent with capitato-glandulose hairs. Petals shorter than the sepals, deeply bipartite. Stamens 10, of which 5 are shorter than the other half: filaments delicately capillary: anthers compressed, yellow. Ovary spherical, sub-3-gonal: styles 3, longer than the stamens, spreading: stigmata puberulo-papillose. Capsule longer than the calyx, opening with 10 fine teeth: seeds  $\infty$ , slightly compressed, granulato-papillose.

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## ORDER XXIV. MALVACEÆ.

Calycine sepals 5, rarely 3-4, more or less united at the base, with a valvular æstivation, in many furnished externally with bracteolated leaves constituting an outer calyx or involucre. Petals of the same number as the sepals, hypogynous, with a spirally twisted æstivation, either distinct, or more frequently adnate to the base of the tube of the stamens. Stamens of the same number as, or frequently many times the number of the petals, hypogynous: filaments monadelphous, unequal in length: anthers 1-celled, reniform, dehiscent by a transverse slit. Ovary formed by the union of several carpels round a common axis, either distinct or coherent: styles and stigmata the same in number as the carpels. Carpels 1-2-seeded or polyspermous, sometimes united in one, or separate, or separable: dehiscence loculicidal or septicidal: seeds somewhat hairy: albumen none, or in small quantity: embryo curved, with twisted or double cotyledons.

Herbaceous plants, shrubs, or trees: leaves alternate, more or less divided, stipulated: hairs stellated: peduncles usually axillary.

The Mallow Tribe are principally inhabitants of tropical re-



gions. They abound in mucilage, and are destitute of any unwholesome properties. The fibres of the bark of many of the species, are so tenacious, as to be capable of being manufactured into very good cordage.

# I. MALVA. *Mallow.*

Calyx surrounded by an involucre of 3-, rarely 5–6, oblong or setaceous bracteoles. Carpels capsular, numerous, circularly arranged, 1-seeded.

Plants belonging to this genus abound in a mucilaginous juice.—*Name*, derived by the Latins from *μαλακη soft*, in allusion to the emollient nature of the species.

## 1. *Malva tricuspidata.* *West India Mallow.*

Leaves ovate or ovato-oblong serrated, flowers axillary solitary crowded with the leaves at the ends of the branches in a spike-like manner, carpels 3-cuspidate 1-seeded.

*M. Americana*, *Cav. diss.* II. t. 22. f. 2.—*M. Coromandeliana*, *Swartz, Obs.* 262.—*Willd. Sp.* III. 776.—*Sida Jamaicensis*, *Miller, Dict.*

HAB. Common.

FL. Throughout the year.

Suffruticose, about a foot in height: branches hirsute with appressed hairs, compressed especially towards the extremities. Leaves alternate, petiolate, ovate or oblongo-ovate, acute, coarsely serrated, entire towards the base, sparingly hirsute, penni-nerved: petiole terete, hirsute, nearly an inch in length. Stipules half the length of the petiole, lanceolate, ciliated. Peduncles half the length of the stipules, axillary, subsolitary, being accompanied by a short leafy flowering branchlet, crowded at the ends of the branches in a spike-like manner, but with a leaf (sometimes only imperfectly developed) below each. Leaflets of the involucre 3, lanceolate, length of the calyx: calyx 5-partite, ciliated. Petals obliquely truncated. Column of the stamens glabrous: filaments, where free, twisted and interlaced. Styles 10, reflected below the anthers: stigmata capitate, papillose. Carpels 10–12, with an apicula at the inner angle, and two spreading horn-like apiculæ at the outer: seeds reniform.

According to former authors, the flowers are crowded in the axils of the leaves; whereas the flowers are axillary solitary and crowded with the leaves, into a spike-like form.—This species, like its cogeners, abounds in a mucilaginous juice, and is employed by the Negro women, as a substitute for soap, in

washing Osnaburghs and other coarse cloths. An infusion of leaves is employed as a wash for the hair, giving it a glossy appearance, as if from oil.

### 2. *Malva spicata*. *Spike-flowered Mallow*.

Leaves ovate or subcordate scabrous above stellatomentose beneath, flowers in an ovate or oblong spike, carpels 14 glabrous awnless 1-seeded.

*Sloane*, I. 219. t. 137.—*Browne*, 282.—*Cav. diss.* II. t. 20. f. 4.—*De Cand. Prod.* I. 430.

HAB. Common.

FL. After the autumnal rains.

Stem 2–3 feet in height, suffruticose, branched, incanotomentose with stellated hairs. The larger leaves subcordate; the smaller ones ovate, serrated. Spikes axillary and terminal, at first ovate, afterwards oblong. Flowers subsessile, of an orange colour, with two small linear hairy bracteoles at their base. Leaflets of the involucre 3, lanceolate, attenuated, tomentose, length of the calyx. Calyx acutely 5-fid to the middle, hirsute, intermixed with a stellated pubescence. Petals spreading, unequally obcordate. Column of the filaments stellato-puberulous. Ovary orbiculate, depressed in the centre: styles 10, cohering at the base, spreading towards the apex: stigmata obtuse. Carpels 12–14–15, glabrous.

By no means an attractive plant. Common by the roadsides, and in waste places.

### 3. *Malva prostrata*. *Spreading Mallow*.

Leaves palmato-5-lobed inciso-dentate, pedicels solitary longer than the petiole, fruit glabrous, petals entire, carpels bivalve 2-seeded.—*De Cand.*

*Cav. diss.* II. t. 16. f. 3.—*De Cand. Prod.* I. 436.—*Bot. Mag.* 2515.

HAB. Near Clifton-mount.

FL. Autumn.

## II. MALACHRA.

General involucre 3–5 leaved surrounding a head of flowers. Calyx surrounded by its proper involucre, 8–12 leaved; leaflets linear or setiform. Carpels 5, disposed in a circle, 1-seeded.—*De Cand.*

*Name*, applied by Pliny to a tree in Persia, producing a gum, but which has no connection with any of the species comprehended in this genus.

1. *Malachra capitata*. *Hirsute Malachra*.

Leaves subrotund cordate obsoletely lobed toothed, peduncle axillary short bearing 7 flowers within a 3-leaved involucre, stem hirsute.

*Malva aspera major aquatica*, *Sloane*, I. 217, t. 147. f. 1.

HAB. Bath, St Thomas in the East. Ferry road. Sea-side at Rockfort.

FL. End of the year.

Stem 3-5 feet in height, erect, branched, terete, hirsute with strigoso-spinescent hairs, with a tomentose line passing upwards from the axil of each leaf. Leaves subrotund, cordate, obsoletely lobed, acute at the apex as also the lobes, irregularly toothed, 5-nerved, hirsute, and also stellato-pubescent especially along the under surface of the nerves: petiole compressed, hirsute, with a line of tomentose hairs along the upper surface. Stipules  $\frac{1}{2}$ -1 inch long, setaceous, hirsute. Peduncles axillary, 1-3 together, not so long as the petiole, each bearing 7 flowers in a head. Involucre 3-leaved; leaves petioled, cordate, acuminate, entire, nerved, hirsute; each of them furnished at the petiole with a pair of linear strigose inch-long leaflets. Flowers yellow, subsessile. Calyx 5-fid; segments lanceolate, 3-nerved, ciliated. Petals 5, nearly 2<sup>co</sup> the length of the calyx, wedge-shaped at the base, rounded at the apex, ciliated, veined. Column of stamens hirsute: anthers  $\infty$ . Style 10-fid, recurved. Carpels 5, united to form an orbicular depressed capsule, glabrous, scrobiculate: seeds one in each carpel.

A coarse weed. Shuts its flowers at mid-day. The hairs stiff and somewhat stinging.

III. *URENA*.

Calyx surrounded by a 5-fid involucellum (5 leaflets united for half their length). Anthers at the apex of the tube of the stamens. Carpels capsular, 5, connivent, 1-seeded, generally echinated externally with prickles radiating at their apex.—*De Cand*.

Leaves usually glandulose on the under surface.—*Name*, from the word common in Malabar to designate this genus.

1. *Urena reticulata*. *Reticulated Urena*.

Lower leaves roundish sub-3-lobate cordate, the upper ones ovate, angulated irregularly serrated hispid above stellato-hirsute reticulated and uniglandulose beneath, involucellum 5-7-fid somewhat longer than the calyx.

*Cav. diss.* VI. 334. t. 183. f. 1.—*De Cand. Prod.* I. 441.

HAB. Common in mountain pastures.

FL. Throughout the year.

Suffruticose: branches terete, coloured, stellato-hirsute. Leaves alternate, petiolate, incanescens beneath, 7-nerved with a minute glandule like a slit, near the base of the under surface of the mid-rib: petiole length of the leaf, terete. Stipules linear, ciliated, deciduous. Flowers on a short peduncle, axillary, subsolitary, pink-coloured, rather large and showy. Involucellum 5-7-fid: divisions lanceolate, obtuse, stellato-hispid, persistent. Calyx 5-fid; divisions ovate, acuminate, ciliated. Petals oblong, rounded at the apex, cohering at the base to the tube of the filaments. Column of the filaments coloured: anthers shortly pedicelled: pollenary globules to the glass minutely echinato-puberulous, purpurascens. Ovary depressed, hirsute: style 10-fid with the divisions puberulous with capitate hairs: stigmata 10, crimson, puberulous. Carpels 5, forming an orbicular depressed capsule, stellato-hispid, armed with prickles radiating at the apex with reflected hairs: seeds solitary.

Some of the echinated globules of pollen are usually to be found entangled in the hairs of the stigmata.

## 2. *Urena Swartzii.* *Swartz's Urena.*

Leaves 3-5-lobate pubescent hoary beneath 5-nerved with 3 of the nerves glandulose on the under surface, lobes dentato-sinuated obtuse, capsule echinated.

*U. sinuata*, *Swartz, Obs.* 264.—*U. Swartzii*, *De Cand. Prod.* I. 442.

HAB. Common in moist pastures.

FL. December, January.

Suffruticose, a foot or more in height, with branches terete, stellato-hispid, tomentulose. Leaves alternate, subcordate, 3-5-lobed, with the lobes dentato-sinuated, hirsute, somewhat hoary beneath, 5-nerved, with 3 of the nerves glandulose near the base on the under surface: petioles longer than the leaf, terete, hispid. Peduncles axillary, subsolitary, short, 1-flowered. Involucellum 5-partite: divisions lineari-lanceolate. Calyx 5-partite: divisions broad lanceolate, of the same length as those of the involucellum. Petals pink-coloured stained with purple. Column of the stamens half the length of the petals, slightly declinate: anthers 10; pollen diaphanous, purpurascens, hispidulous. Styles 10, longer than the stamens and bent over them: stigmata obtuse, puberulous. Carpels 5, echinated with herbaceous prickles armed at the apex with minute radiating reverted setæ: seed solitary, subreniform, 3-gonal.

## IV. PAVONIA.

Calyx surrounded by a 5-15-leaved involucellum. Stigma 10. Carpels 5, capsular, bivalved, 1-seeded. —*De Cand.*

*Named*, in honour of Don Jose Pavon, one of the authors of the FLORA PERUVIANA.

1. *Pavonia spinifex*. *Spine-fruited Pavonia*.

Leaves cordate acuminate coarsely and irregularly dentate stellato-pubescent, peduncles axillary 1-flowered, carpels echinated with scabrous stiff reverted spines.

*Cav. diss.* III. 133. t. 45. f. 2.—*Willd. Sp.* III. 834.—*Hibiscus spinifex*, *Jacq. Amer.* 196.

HAB. Limestone districts. Halberstadt, Port-Royal mountains. Road from Springvale to St John's.

FL. September.

A shrub about 5 feet in height: branches few, terete, traced on one side with a line of pubescence, and also bearing distant stellated hairs. Leaves alternate, petiolate, cordate, acuminate, irregularly toothed, stellato-hispid: petiole of the same length as the leaf, stellato-hispid. Stipules linear, subulate. Peduncles axillary, 1-flowered, longer than the petiole, terete, pubescent. Leaflets of the involucellum 8, lanceolate. Calyx 5-partite; divisions ovate, 5-nerved, pilose. Corolla infundibuliform, yellow, more than 2<sup>co</sup> the length of the calyx. Stigmata 5, bifid. Carpels 5, armed with three strong spines, one of which is central and the other two external, furnished with stiff reverted hairs or setæ: seeds solitary, 3-quetrous.

This plant appears to belong to *var. γ* of De Candolle. It is by no means a common plant.

2. *Pavonia typhalea*. *Indian Mallow*.

Leaves oblongo-lanceolate dentate, peduncles axillary subterminal many-flowered, flowers conglobate.

*Urena typhalea*, *Linn. Mant.* 258.—*Swartz, Obs.* 294.—*Cav. diss.* II. 134. and VI. 197.—*Pavonia typhalea*, *Willd. Sp.* III. 834.

HAB. Common.

FL. Throughout the year.

Suffruticose, a foot and a half in height: branches few, compressed, purpurascens, stellato-hispid. Leaves alternate, shortly petiolate, stellato-hispid. Stipules  $\frac{1}{2}$  an inch in length, linear.



Peduncles subterete, hispid, bearing at the extremity, in a kind of umbellet, about 6 shortly pedicelled somewhat attractive flowers: bracteas lanceolate, about  $\frac{1}{2}$  an inch in length. Leaflets of the involucre 6, lineari-lanceolate, longer than the calyx. Calyx 5-fid. Petals veined, externally (to the glass) puberulous. Anthers 10-12, attached to the column of the stamens by short pedicels; pollenary globules echinato-puberulous. Style 10-fid; divisions reflected in pairs between the pedicels of the anthers: stigmata puberulous. Carpels distinct, 3-gonal, 2-valved, armed with a central awn, and with one at each of the upper and outer angles; awns hispid with reverted hairs: seed solitary.

### 3. *Pavonia racemosa*. *Racemed Pavonia*.

Leaves ovate cordate acuminate obsoletely dentate 3-nerved minutely stellato-puberulous, raceme terminal, involucellum 6-8 leaved shorter than the calyx, carpels unarmed.

*Alcea fruticosa aquatica*, *Sloane*, *Jam.* I. 121. t. 139. f. 2.—*Althæa uliginosa*, *Browne*, 284.—*P. spicata*, *Cav. diss.* III. 136. t. 46. f. 1.—*P. racemosa*, *Swartz*, *Fl. Ind. Occ.* II. 1215.

HAB. Sea-shore near Rochefort.

FL. December—April.

A shrub about 6 feet in height: roots long and (according to Swartz) arching over, similar to those of the RHIZOPHORA: branches terete, stellato-hispidulous. Leaves alternate, petiolate, ovate, cordate, attenuato-acuminate with the apex obtuse, dentate with the teeth distant blunt and indistinct, 3-nerved besides a marginal pair, minutely stellato-puberulous, and also minutely punctulated beneath; petiole terete, stellato-puberulous. Stipules subulate, deciduous. Raceme terminal, elongating, simple. Flowers greenish-yellow, subsecund on inch-long pedicels. Leaflets of the involucellum 6-8, connate at the base. Calyx 5-fid: divisions ovate, acuminate, erect, externally puberulous, internally hoary. Petals convoluto-cylindrical, nearly 2<sup>ce</sup> the length of the calyx, oblong, not auriculated, rounded at the apex, narrowing at the base, veined, to the glass puberulous. Column of the stamens declinate, minutely puberulous; the free portion of the filaments subsecund: anthers numerous; pollen hispidulous. Style rather longer than the stamens and petals obscurely 5-fid: stigmata capitate. Capsule of 5 separable carpels, toothed at the angles where they meet: seeds solitary.

According to Swartz, the involucellum is 8-10 leaved; and the style is 6-8-fid.

### 3 \* *Pavonia corymbosa*. *Corymb-flowered Pavonia*.

Leaves cordate or angulated serrated glabrous,

flowers corymbose, peduncles and the many-leaved involuella pilose.—*De Cand.*

*Althæa corymbosa*, *Swartz, Fl. Ind. Occ.* 1213.—*Pavonia corymbosa*, *Willd. Sp.* III. 836.—*De Cand. Prod.* I. 444.

HAB. Banks of rivers.—*Sw.*

FL.—?

Frutescent, 1–2 feet in height: branches pubescent. Petioles long, glabrous. Stipules linear. Peduncles axillary, longer than the petioles, hirsute: flowers several, subcorymbose, rather large, pedicelled, yellow. Leaflets of the involucellum 10–12, linear, pilose. Style 10-fid to the middle: stigma subcapitate, puberulous. Carpels 5, slightly muricated, 1-seeded.—*Sw.*

Described by Swartz as found on the banks of rivers in Jamaica and Hispaniola.

#### V. MALVAVISCUS.

Calycine involucellum many-leaved. Petals erect, convoluted. Stigmata 10. Carpels 5, berried, 1-seeded, sometimes subdistinct, more frequently connate into a 5-celled fruit.

##### 1. *Malvaviscus arboreus*. *Tree-like Malvaviscus*.

Leaves cordate ovate acuminate occasionally 3–5-lobed subentire or obsoletely crenated minutely hispidulous, branchlets with a line of pubescence passing from the axil of one leaf to the side of the petiole of that which is above it.

*Sloane*, I. 216. t. 136. f. 1.—*Achania malvaviscus*, *Swartz, Fl. Ind. Occ.* 1222.—*Malvaviscus arboreus*, *Cav. diss.* III. t. 48. f. 1.—*De Cand. Prod.* I. 445.

HAB. Common on the lower hills, especially in limestone districts.

FL. Throughout the year.

A shrub, 6–10 feet in height: branches spreading, terete, glabrous with exception of a line of pubescence passing upwards from the axil of one leaf to one of the sides of the petiole of that which is above it. Leaves cordate, ovate, acuminate, occasionally 3–5-lobed, indistinctly crenulated, nervose, venose, hispidulous with minute distant stellated hairs: petiole long, with a line of hispidulous hairs on the upper surface. Stipules small, lanceolate deciduous. Peduncle axillary, solitary, rather shorter than the petiole, 1-flowered. Involucellum of 7–9 linear leaflets. Calyx nerved, ciliated. Petals crimson, minutely ciliated, externally puberulous. Column of the stamens

2<sup>ce</sup>. the length of the petals, spirally twisted, 5-toothed at the apex, minutely puberulous, crimson: filaments, where free, reflected: anthers purple; pollenary globules minutely puberulous. Ovary spherical: style longer than the column, 10-fid at the apex: stigmata subcapitate, purple. Carpels 5, united to form a globular berried capsule: seeds solitary.

## 2. *Malvaviscus pilosus*. *Hairy Malvaviscus*.

Leaves cordate crenated attenuato-acuminate with the apex obtuse, branchlets and petioles hairy.

*Achania pilosa*, Swartz, *Fl. Ind. Occ.* 1224.—*Bot. Cab.* 829.

HAB. Common in the higher mountains.

FL. Throughout the year.

A shrub, about 8 feet in height: branches terete, towards their extremities stellato-pilose. Leaves ovate, cordate, very much attenuated at the apex which is blunt, 3-nerved, unequally crenated, stellato-puberulous above, stellato-pilose, especially along the nerves and villous in their axils, beneath, minutely pellucido-punctulated: petiole bearing the leaf in a petate manner, pilose especially above. Stipules nearly an inch in length, lineari-subulate. Peduncles axillary, solitary, terete, stellato-pilose, 1-flowered. Leaflets of the involucre 7-9. Two or more of the divisions of the calyx accrete. Petals veined, ciliated, scarlet. Column of the filaments much longer than the corolla, spirally twisted, 5-toothed at the apex: anthers on reverted filaments. Style longer than the stamens, 10-fid at the apex: stigmata purple, puberulous. Fruit globose, yellow.

There appears, at first sight, to be a great resemblance between these two species: but they are readily distinguished on a closer examination. They are also found in very distinct localities: the former is a native of our low hills and the damp shady situations of our plains: whereas the latter is an inhabitant of our mountains. The flowers of both are attractive and beautiful, and deservedly claim a place in our gardens.

## VI. HIBISCUS.

Calycine involucre generally many-leaved, rarely few-leaved or with the leaflets united. Petals in this, as well as the succeeding genera, not auriculated. Stigmata 5. Carpels united to form a 5-celled capsule, with the valves longitudinally septiferous from the centre: cells many-, rarely one-seeded.

All the species abound in mucilage, and the bark of such as have woody stems, may be manufactured into mats or cordage.—The name was that of the *Mallow* among the Greeks.

SECT. 1. *Cells 1-seeded.*I. *Hibiscus pentaspermus.* *Five-seeded Hibiscus.*

Hirsute, leaves cordate acuminate coarsely-toothed, peduncles axillary 1-flowered somewhat longer than the petiole, fruit pentagonal stellato-hispid especially along the angles.

*Bertero, De Cand. Prod. I. 447.*

HAB. Savannah la Mar, *Dr Distin.*—Var.  $\beta$ . Morant-Bay.

FL. After the May and Autumnal rains.

Herbaceous, 3 feet in height: branches long, subsimple, terete, setoso-hirsute, with a line of pubescence on one side. Leaves alternate, petiolate, cordate, acuminate, coarsely toothed, 3-nerved, stellato-hirsute. Stipules linear. Peduncles axillary, solitary, 1-flowered, longer than the petiole. Leaflets of the involucre 8. Flowers yellow. Petals externally stellato-setose. Column of the stamens of nearly the same length as the petals. Stigmata 5, reflected. Capsule pentangular, depressed, stellato-setose especially at the angles: seeds solitary, naked.

The variety of this plant which grows at Morant-Bay, has the flowers white, and the leaves semitrilobate: in every other respect it agrees with the plant of Bertero, specimens of which I have had an opportunity of examining in the Hookerian Herbarium.

SECT. 2. *Cells many-seeded.* *Seeds glabrous.*2. *Hibiscus Rosa-Sinensis.* *Chinese Rose.*

Stem unarmed arborescent, leaves ovate acuminate glabrous very entire at the base coarsely-toothed towards the apex subincised, peduncles length of the leaves, involucre 7-leaved.

*Cav. diss. III. t. 69. f. 2.—Rheed. Mal. II. t. 16.—Bot. Mag. 158.*

HAB. Cultivated.

FL. Throughout the year.

This is a favourite plant and universally cultivated in China and India, where the flowers are employed on every festal occasion, as also in their sepulchral rites. It has become with us one of the most common shrubs in our gardens, and we are possessed of all the different varieties, with exception of the *double-white*. It is mentioned by Rheed, that the root, triturated with oil, is employed by the natives of Malabar as a remedy in Menorrhagia. The leaves are regarded by the Cochinese

Chinese as emollient and resolvent, and useful in Strangury and Dysuria. The flowers, from the mucilaginous juice they contain, are employed to give a polish to the leather of shoes; and hence the plant has received the name of the *shoe-black* (*ROSA CALCEOLARIA*). They are also made use of to give a red tinge to certain spirituous liquors. The plant itself may be grown to form an ornamental fence. None of the varieties perfect the fruit in this country. It grows readily from cuttings, and the different varieties may be grafted without difficulty on one another.

### 3. *Hibiscus bifurcatus*. *Bifurcated Hibiscus*.

Stem fruticose scabrous toward the end of the branches, peduncles and the under surface of the nerves of the leaves scabrous with reversed prickles, leaves 3-5-lobed acuminate serrated, leaflets of the involucre bifid at the apex.

*Cav. diss.* III. 146. t. 51. f. I.—*De Cand. Prod.* I. 449.

HAB. Sea-shore, near Spring-garden estate, St George's.

FL. February.

Suffrutescent, about 3 feet in height: branches long, subsimple, subterete, green, muricated with the asperities directed backwards. Leaves; the lower ones subtrilobate, the upper with the middle lobe elongated so as to approach to hastate, cordate, acuminate, irregularly serrated, stellato-hispid especially beneath, ciliated: petiole muricated with reverted prickles. Flowers axillary, solitary, peduncled, large, purple: peduncle shorter than the petiole, scabrous. Leaflets of the involucre 10, linear, double pointed at the apex, hispid. Calycine segments 3-nerved, acute, hispid. Corolla about four times longer than the calyx. Stigmata subcapitate, puberulous. Capsule setoso-hirsute; cells many-seeded.

This, very beautiful species, is a native of Brazil and Porto-Ricco, as well as of this Island.

### 4. *Hibiscus esculentus*. *Edible Okra*.

Leaves cordate 5-lobed somewhat obtuse dentate, petiole longer than the flower, involucre 10-leaved deciduous, calyx bursting longitudinally.

*Sloane*, I. t. 133. f. 3.—*Browne*, 285—*Cav. diss.* III. t. 61. f. 2.

HAB. Cultivated.

FL. Throughout the year.

The full, but unripe fruit of this species is an excellent vegetable. It abounds in mucilage, and is either dressed plain, or



employed in soups, to render them thick, rich, and nourishing. It is an important ingredient in the peculiar dish of the country, called *calalou*. An infusion of the fruit, and also the leaves, is much recommended in affections of the urinary organs. It is a common opinion in Egypt, that the use of this vegetable protects against the attacks of stone or gravel. It has also been recommended in cases of consumption. Barham mentions, that by the constant use of the Okra as food, he cured in 12 months a case of this disease. The pods, with the seeds, dried and reduced to a powder, may be preserved for a length of time, and employed to thicken soups or broths. This plant grows in the hottest and driest parts of the Island, and is in constant bearing. It does not thrive in the higher mountains. It is said to have originally been a native of the Old World.

### 5. *Hibiscus Abelmoschus*. *Musk Okra*.

Leaves subpeltate cordate 3-or sub-5-lobed acuminate serrated, stem hirsute, peduncles longer than the petiole, involucellum 8-9-leaved, calyx bursting longitudinally, capsule pyramidal 5-sided setose.

*Alcea hirsuta*, semine moschato, *Marcgr. Bras.* 45. t. 45.—*Browne*, 285.—*Hibiscus Abelmoschus*, *Cav. diss.* III. t. 62. f. 2.—*Willd. Sp.* III. 826.—*De Cand. Prod.* I. 452.

HAB. Cultivated : rarely found wild.

FL. Throughout the year.

Suffruticose, seldom lasting longer than a year, about 4 feet in height, hirsute. Leaves 3-nerved, hirsute above, stellato-hirsute beneath. Peduncles axillary, solitary. Calyx cleft on one side, 5-toothed. Petals sulphur-yellow, with the claws crimson. Stigmata 5, capitate, velvety. Capsule pyramidal, 5-sided, setose : seeds numerous, of a musky smell.

This plant evidently belongs, from the character of the calyx, to the 3d Section, *Manihot* of De Candolle. It is supposed to be a native of both Indies. The seeds are warm to the taste, and have a strong musky odour. They are said to be emetic, and it has been proposed to employ them in nervous and spasmodic diseases as a substitute for the more expensive drug, which it resembles, at least, in smell. According to M. de Humboldt, they are given, by the Spaniards of New Andalusia, as a remedy for the bite of the Rattle-snake. The Arabians also are said to perfume their coffee with them in the state of powder. They are sometimes employed to adulterate genuine musk, and as a substitute for it in perfumery.

### 6. *Hibiscus Subdariffa*. *Indian Sorrel*.

Leaves dentate, lower ones ovate undivided, upper

ones 3-lobate wedge-shaped at the base, flowers sessile, involucrellum monophyllous 12-toothed.

*Swartz, Obs.* 269.—*Cav. diss.* III. t. 198. f. 1.—*De Cand. Prod.* I. 453.

HAB. Cultivated.

FL. Autumn.

A suffruticose herbaceous plant. The stem, branches, petioles, and nerves of the leaves, as also the peduncles and external floral coverings, are of a blood-red colour. All parts of the plant are more or less acid to the taste. The Calyces and involucella are thick and leathery or fleshy, and form, when boiled with sugar, an agreeable acidulated conserve; or they may be made into tarts. An infusion also may be prepared from them, known by the name of Sorrel-drink, forming a refreshing beverage. Hernandez states that two drachms of the root act as a gentle laxative. The fibres of the stem may be made into cordage.

### 7. *Hibiscus elatus.* *Mountain Mahoe.*

Leaves roundish-cordate very entire hoary-pubescent beneath, peduncles short 1-flowered.

*Malva arborea folio rotundo, Sloane, I.* 95. t. 134. f. 2 and 3.  
—*Hibiscus arboreus, Browne, 284.*—*H. elatus, Swartz, Fl. Ind. Occ.* 1218.

HAB. Lower hills, and plains in the interior of the Island.

FL. January—March.

A lofty tree, 50–60 feet in height, with the bark smooth, and branches spreading. Leaves roundish, cordate, abruptly acuminate, 5–7-nerved, minutely and distantly stellato-puberulous above, hoary and tomentulose beneath: petioles elongated: a glandulose linear slit near the base of the mid-rib of the older and larger leaves. Stipules large, amplexicaul at the base, oblongo-ovate, acute, puberulous, deciduous. Peduncles axillary, solitary, 1-flowered. Flowers large, of a purplish saffron colour. Involucrellum 10-fid; divisions erect, acute. Calyx an inch in length, 5-partite for more than half the length. Petals nearly 3 inches in length, oblong, oblique, rounded at the apex, thickish and somewhat leathery, longitudinally veined, minutely stellato-puberulous. Column of the stamens of the same length as the petals, 5-grooved, subquincidentate at the apex: anthers yellow, on short capillary pedicels, arranged along the angles of the column, leaving only about an inch at the base vacant. Ovary rotundo-conical, 5-sided, sericeo-pubescent: style incrassated towards the stigmata, which are 5, of a deep purple colour, and pubescent with capitate hairs. Capsule globular, tomentose, 5-celled, 5-valved.

This is a lofty tree with a straight stem, and affords a

valuable timber, much prized, especially by cabinet-makers, having, when worked up and polished, the appearance of dark green variegated marble. The bark is the material employed by the Negroes in making the better description of ropes. The young shoots and leaves yield abundantly a fine mucilage, and they have been employed with advantage, infused in boiling water, as a substitute for the *vanglo* or *zezegary*, in Dysentery.

### 8. *Hibiscus tiliaceus*. *Sea-side Mahoe*.

Leaves subrotundo-cordate acuminate crenated hoary and pubescent beneath, involucrellum 10-toothed.

*Malva arborea maritima*, folio subrotundo minore acuminato subtus candido, *Sloane*, I. 215. t. 134. f. 4.—*H. tiliaceus*, *Cav. diss.* III. 151. t. 55. f. 1.—*Willd. Sp.* III. 810.—*De Cand. Prod.* I. 454.—*H. abutiloides*, *De Cand. Prod.* I. 454.

HAB. Common by the sea-shore.

FL. Throughout the year.

A tree, 16–20 feet in height. Leaves with a linear pore on the under surface of each of the three middle nerves. Stipules lanceolate, striated, pubescent, marescent, deciduous. Peduncles solitary, in the axils of the subterminal leaves. Flowers yellow. Calyx with a linear pore on the back of each of its segments.

The leaves of this species are thicker, but not so large as those of the preceding. The flowers also are smaller, of a yellow colour, with the petals membranaceous. The bark affords a strong fibre equal to hemp or flax, and, when well twisted and tarred, is not inferior to the best description of hempen rope. Dampier mentions, that he had often occasion to make use of ropes, made from the bark of this tree, in refitting the rigging of his vessels. All parts of the tree, especially the flowers, abound with a mucilaginous juice.—This species appears to be common to the shores of the East, as well as of the West Indies. From its growing near the sea, its capsules are conveyed by the waters to distant countries, and hence its general diffusion. There appear to be no good grounds, for separating our West India plant, from that which grows along the shores of the East, as it agrees perfectly with the character assigned by De Candolle to the latter. I never met with the leaves, as stated to be in the *Prodromius*, glabrous on both sides.

### 9. *Hibiscus clypeatus*. *Congo-Mahoe*.

Leaves cordate semi-trilobate dentate velvety and hoary especially beneath, branches velvety, peduncles longer than the petiole, leaflets of the involucrellum 9–11, calycine lobes ovate acuminate 5-nerved, capsule hirsute.

*Malva arborea*, folio velutino, *Sloane*, l. t. 135. f. 1.—*Ketmia amplissimo folio angulato*, *Plum. Spec.* III. t. 160. f. 2.—*Hibiscus clypeatus*, *Cav. diss.* III. 166. t. 58. f. 1.—*Swartz, Obs.* 270.

HAB. Red Hills near Spanish-Town, *Sloane*.—Sheldon works and Five-mile Wood, St David's. Salt-River, St Dorothy's.

FL. December.

A shrub, 6–12 feet in height: branches erect, terete, hoary and velvety with stellated hairs. Leaves alternate, petiolate, cordate, angulated or semitrilobate, with the lateral lobes ill-defined and the middle one subacuminate, sparingly toothed, 5–7-nerved, hoary and velvety especially beneath, about 4 inches long, and the same broad: petiole about the length of the leaf. Peduncles axillary, solitary, about twice the length of the petiole, 1-flowered. Flowers large but not showy, of a soiled yellow and slightly erubescens colour. Leaflets of the involucellum 9, 10, or 11, unequal, about an inch in length, linear, longitudinally nerved, tomentose. Calyx large, externally stellato-tomentose; lobes broad, ovate, acuminate, 5-nerved; the upper ones erect; the lower ones more or less reflected. The 2 upper petals erect; the others more or less reflected; oblong, obtuse, internally puberulous, externally sericeo-tomentose and ciliated. Column of the stamens bent down, thick, subpentagonal, connected with the base of the petals by means of strong *isthmi*: anthers yellow. Styles 5: stigmata capitato-depressed. Capsule 5-celled, 5-valved (with the valves septiferous down the middle), hirsute with bright yellow hairs: seeds numerous in each cell, black, glabrous.

This plant has probably received from the Negroes the name of *Congo-Mahoe*, from its resembling some plant, bearing the name of Mahoe, in their native country. The bark makes a very fine strong cord, and is employed to make the lashes of whips.

SECT. 3. *Cells many-seeded. Seeds woolly.*

10. *Hibiscus Bancroftianus.* *Dr Bancroft's Hibiscus.*

Hispid, leaves ovate, cordate obtuse crenated, peduncles axillary longer than the leaf filiform jointed above the middle, involucellum 9-leaved shorter than the calyx.

HAB. St Ann's.

FL. Throughout the year.

A shrub, about 5 feet in height: branches erect terete, stellato-hispid, and traced with two subopposite lines of villous



hairs passing from the insertion of each petiole into the axil of that below. Leaves stellato-hispid especially beneath. Stipules subulate. Peduncles axillary, solitary, hispidulous, 3 times the length of the petiole, articulated above the middle. Flowers crimson, showy. Leaflets of the involucre about 9, lineari-spathulate, acute, 3-nerved, ciliated. Calyx 5-partite below the middle; divisions ovate, acuminate, hispid. Petals more than twice the length of the calyx, oblong. Column of the stamens longer than the petals: anthers reniform. Cells of the capsule 6-seeded: seeds angular, black, woolly.

This, very beautiful species, is now very generally cultivated in our gardens. It was first discovered by Mr Rose of St Ann's, and its characters were first pointed out by Dr Bancroft, from whom it received the name of *H. MACLEAYANUS*, in a paper read before the Horticultural Society of Jamaica.

### 11. *Hibiscus unilateralis*. *Unilaterally-stamened Hibiscus*.

Subglabrous, leaves ovate acuminate crenato-dentate, peduncles axillary longer than the leaf jointed above the middle, leaflets of the involucre 9-11 longer than the calyx, stamens unilateral.

*Cav. diss.* III. 158. t. 67.—*De Cand. Prod.* I. 452.

HAB. Cultivated.

FL. Throughout the year.

A shrub, about 5 feet in height: branches erect, terete, compressed towards the extremity, subglabrous. Leaves ovate, rounded at the base, acuminate, crenato-dentate, 3-nerved, glabrous above, minutely stellato-hispidulous beneath. Stipules subulate. Peduncles axillary, solitary, longer than the leaf, articulated above the middle, glabrous. Flowers crimson. Leaflets of the involucre linear. Calyx stellato-hispidulous; divisions subacuminate. Petals wedge-shaped, somewhat longer than the leaflets of the involucre, minutely hispidulous. Column of the stamens declinate, length of the petals: anthers pedicelled on one side of the column, orange-coloured. Styles 5: stigmata capitate. Capsule globose, hispidulous; cells 4-seeded or fewer: seeds black, angulated, woolly.

It is difficult to say whether this be a native or not. It is common in our gardens with the preceding, to which it bears a considerable resemblance.

### VII. *Gossypium*. *Cotton-shrub*.

Calyx cup-shaped, obtusely 5-toothed, surrounded by a 3-partite involucre, with the leaflets united



at the base, cordate, inciso-dentate. Stigmata 3-5. Capsule 3-5-celled, many-seeded: seeds bearing a tomentose wool.

*Name*, supposed to be derived from GOSSYPION or XYLON, a plant described by Pliny as a native of Upper Egypt, the pods of which furnished the wool, of which the garments of the Egyptian priests were made.

### 1. *Gossypium Brasiliense*. *Chain-Cotton*.

Subglabrous, leaves 4- rarely 3- or 5-lobed triglandulose beneath, leaflets of the involucrellum 3 lacinated with a black depressed glandule at the base of each, capsule 3-celled, seeds adhering.

HAB. Cultivated and wild.

FL. May—November.

A shrub, usually 4-5 feet in height: branches spreading, glabrous, rough with small black papillary inequalities. Leaves 4-5-, rarely 3-lobed, with the middle lobe the largest, acuminate, cordate at the base, 5-nerved with the 3 middle nerves uniglandulose near the base, punctate with black dots (especially along the under surface of the nerves), glabrous above, pubescent with minutely twisted hairs beneath: petiole nigro-papillose, glabrous. Stipules lineari-lanceolate, deciduous. Peduncle axillary, solitary, 1-flowered, coloured on one side, nigro-papillose, glabrous, articulated and furnished with a pair of irregular leaflike bracteas. Involucrellum 3-partite nearly to the base; divisions ovate, lacerato-dentate, green, subglabrous, nigro-papillose, veined, membranaceous, with a large black depressed gland at their base. Flowers yellow, changing, as they fade, to a pale rose red. Calyx obscurely 4-5-toothed, nigro-papillose. Petals obovate, with the sides unequal, veined, glanduloso-punctulated, minutely puberulous externally. Anthers yellow; pollen hispidulous (under the microscope). Ovary conical, glabrous, nigro-papillose: style length of the column of the stamens, 3-sided, white with black dots: stigma 3-fid, expanded. Capsule ovate, 3-celled, 3-valved: seeds several, closely adhering together, ovate, black; cotton white.

This species is that which is most esteemed; the cotton being white and silky, and having a long staple, and separating readily from the seeds, which adhere firmly together. The seeds in *G. HIRSUTUM* also adhere together in this manner, but the difference is too great in many other important points, to allow of the plant before us being referred to that species. It is probable that this variety was brought from Brazil, as it was known in the time of Sloane, as well as in that of Edwards, by the name of Brazilian cotton. "The Brazilian cotton tree," says the

first mentioned Author,\* "has many seeds conglomerated; the other, its seeds separated."

2. *Gossypium purpurascens*. *Purple-stemmed Cotton*.

Subglabrous, leaves 3-lobed glabrous above pubescent and uniglandulose beneath, leaflets of the involucre cordate laciniated, capsule 3-celled, seeds distinct ovate acute.

*Poir. suppl.* II. 369.

HAB. *Liguanea*.

FL. March—November.

A shrub 6–10 feet in height: branches purpurascens, nigropapillose towards the extremity, glabrous. Leaves 3-lobed, with the lobes ovato-lanceolate, acute, 3-nerved with the middle nerve glandulose on the under surface near the base, glabrous above, pubescent and nigropapillose along the nerves beneath: petiole glabrous. Stipules an inch in length, attenuato-lanceolate. Peduncle axillary, usually furnished with an ovate acuminate leaf. Petals of a sulphur yellow, with a deep purple stain at the claw; externally puberulous and nigropunctulated. Stigmata 3. Capsule 3-valved: seeds separate, ovate, acute, black: cotton white.

This species is described by Poiret as a native of the warmer parts of America. It approaches very nearly to *G. BARBADENSE*; but, in the latter, the leaves are triglandulose beneath, and the lower ones are 5-lobed.

3. \* *Gossypium Barbadense*. *Barbadoes Cotton*.

Subglabrous, upper leaves 3-lobed, lower ones 5-lobed, triglandulose on the under surface, capsules 3-celled.

*Willd. Sp.* III. 806.

HAB. —?

FL. —?

4. *Gossypium Jamaïcense*. *Wild Cotton*.

Villous, the upper leaves cordate entire, the lower ones 3-lobed acuminate pubescent above stellato-villous and uni-glandulose beneath, leaflets of the involucre united at the base laciniated at the apex, capsules 4-celled, seeds 5 in each cell free ovate acute.

\* A Voyage to Jamaica, &c. Vol. ii. p. 68.

HAB. Near Rockfort.

FL. April—November.

A shrub, 4–5 feet in height; branches villous with stellated hairs. Leaves cordate; the upper ones entire, the lower ones 3-lobed with the lobes acuminate, 3-nerved, pubescent above, and villous with stellated hairs uniglandulose and nigro-papillose along the nerves beneath: petiole stellato-villous. Stipules lanceolato-falcate. Peduncle 3-gonal. Leaflets of the involucrellum 3, united at the base, attenuato-acuminate and laciniated towards the apex. Calyx irregularly toothed. Petals pale yellow, with a purple stain at the claw. Capsule 4-valved: seeds 5 in each cell, free, ovate, acute: cotton white.

There is a considerable resemblance between this and *G. HIRSUTUM*; but the latter is hirsute, and the capsule, according to Swartz, is 3-celled, and the seeds, according to Willdenow, adherent.

### 5. *Gossypium oligospermum*. *Few-seeded Cotton*.

Hirsute, leaves 5-lobed acuminate undulated pubescent above stellato-hirsute and uni- (rarely bi-) glandulose beneath, leaflets of the involucrellum subtrifid and inciso-dentate at the apex, capsule 4- (rarely 3-) celled, seeds 4 in each cell.

HAB. Waste places, Liguanea.

FL. November—January, and after rains.

A shrub, about 12 feet in height: branches angulose, hirsute with stellated hairs. Leaves 5-lobed, with the lobes lanceolate, acuminate, undulated, subglabrous above, stellato-hispid and 1–2-glandulose beneath: petiole hairy. Stipules deciduous. Flowers subterminal, peduncled. Calycine teeth acute. Petals twice the length of the involucrellum, pale yellow with an obscure purple stain at the claw. Stamens numerous. Stigmata agglutinated. Capsule little more than an inch in length, usually 4-valved, and with the cells 4-seeded: cotton white.

### 6. \* *Gossypium hirsutum*. *Hairy Cotton*.

Hirsute, upper leaves undivided cordate, lower ones 3–5-lobed uniglandulose beneath, leaflets of the involucrellum 3-toothed at the apex, capsule 3-valved, seeds green adherent.

*Willd. Sp. III.* 805.

HAB. —?

FL. —?

It is remarkable that I should not have met with the third and sixth of these species, which were, it would appear, common at one time in this Island. It is probable that they may have exhibited, when in cultivation, different characters,

from what they now do, since they have ceased to be cultivated, and allowed to grow in a state of nature. I am inclined to the opinion, that the numerous sorts of cotton we meet with, are properly but varieties of one species, and hence, the characters, by which it has been attempted to distinguish them, are so variable, and so little to be relied on.

The cotton shrub appears to be indigenous to this Island, as well as to all the tropical regions of the Old and the New World. It was cultivated in India, and the woolly fibres were spun and woven into muslins of the finest fabrics, long ere even the existence of the plant was known to Europeans. The inhabitants of Africa also appear to have been acquainted with the manufacture of it into cloth; and a coarse cotton cloth forms, even now, part of the trade from the interior. Columbus found the Aborigines of St Domingo naked, with the exception of a few who were possessed of a piece of cotton cloth; and in his second voyage, he is said to have brought, from the West Indies, some cotton *mantillas* to Spain. It was in Mexico, however, where the arts had made a considerable progress previous to the arrival of the Spaniards, that cloth manufactured from this material, was found in the most general use. We are informed in Purchas, that the inhabitants were clothed in mantles, "painted throughout with works of diverse and fine colours;" several cities are mentioned as paying their tribute in cotton; and a map was shown to Cortez, "of woven cotton cloth, with the havens and harbours near New Spain set forth in it."

At present there is no cotton grown in this Island for the purpose of exportation. At one time, however, it was an important article of cultivation. The cotton shrub grows best in a light soil, especially in a limestone district, with a moderate supply of moisture. In a stiff clay, or where there is a clay bottom, it seldom thrives, and generally dies as soon as the root has penetrated to a certain depth. It is found to be unproductive in a wet climate, from the flowers, although produced in abundance, dropping off without forming the fruit. It is grown from seed planted between the months of November and April. The land is prepared, by cleaning it of weeds, and digging holes about 18 inches deep, and 12 inches wide, at a sufficient distance to allow the plant free space to spread. About 12 seeds are planted in each hole, and covered lightly with soil. Should the seasons be favourable, they will show above ground in seven or eight days. The young plants are to be carefully kept free of weeds, and repeatedly thinned, till one, or in some cases two, of the healthiest and strongest is left. Very little pruning is required. It is of the greatest importance throughout the whole course of the cultivation, to keep down the growth of weeds. This is the surest method of preserving the plantation in health, and free from the attack of insects. It



has also been confidently stated, that the same intention would be produced by planting *Guinea-grass* through the field, as it would not only keep down every description of weed, but also drive off the numerous insect enemies, which too often disappoint all the hopes of the planter.

The cotton seldom comes into full bearing, before the second year; and it continues productive for four or five years. It blossoms and fruits during the greater part of the year: but the principal bearing is between August and December. In the East, the whole pod is gathered: but it is considered an improvement, to leave the capsules on the trees, and to withdraw from it the cotton with the seeds, which readily comes away. The capsules open when they are ripe; and as they come to maturity in succession, the field must be frequently gone through. It is of importance to gather the cotton in dry weather; and it is necessary, after it is collected, to expose it to the sun, so as to free it from any damp. A machine, called a *gin*, is employed to separate it from the seeds. With one of these, on the present improved principle, a man is capable of cleaning 300 lbs of cotton in a day.

It is very probable that cotton may yet again come to be an article of export from this Island. The cultivation of it, is well adapted for small settlers; as it requires very little attention or labour, and the crop comes in gradually, so as to be easily collected. There is no doubt, but that it might be conducted more advantageously here, than in the Southern States of America, as we have not a winter to contend with, and our climate and soil is completely suitable, from the plant being indigenous.

As to the medical uses to which the cotton may be applied, a decoction of the root is employed in the East Indies for urinary complaints, and an infusion of the leaves or of the flowers internally, as a mucilaginous drink, or externally as a fomentation for the stings or bites of venomous insects and reptiles. The seeds yield a fixed oil, which is sweet to the taste, and has been used to burn in lamps. An emulsion prepared from them has been recommended for dysentery and in pectoral affections. The oil itself, applied externally, is said to clear the skin of spots or freckles. The leaves steeped in vinegar, are applied, like those of the *Castor-oil shrub*, to the forehead and temples, in cases of headach from fever or other causes. The cotton wool itself, carded, has been used to dry quickly blistered surfaces, and as an application in cases of burns. It is said to be a bad dressing for ulcers or wounds, occasioning irritation.

## VIII. ANODA.

Calyx naked 5-fid, lobes acuminate, very patent in the fruit. Capsule subhemispherical beneath, de-



pressed plane and stellariform above, many-celled ; cells 1-seeded.

*Name*, from *α privative*, and *NODUS a joint*, the peduncles not being jointed as in *SIDA*.

1. *Anoda hastata*. *Hastate-leaved Anoda*.

Lower leaves cordate acuminate 5-angled subdentate obtuse, upper ones hastate acuminate subdentate at the base, peduncles axillary solitary length of the leaves.

*Cav. diss.* I. 38. t. 11. f. 2.—*Sida hastata*, *Willd. Sp.* III. 763.

*HAB.* Neighbourhood of Bath, St Thomas in the East, and of the Botanic Garden, St Andrew's.

*FL.* Throughout the year.

The leaves vary in shape. The flowers are usually blue, approaching to purple, rarely white.—From the situation in which it grows, it is most probable an introduced plant. It is a native of Mexico, and of the neighbourhood of Lima.

IX. *SIDA*. *Broom-weed*.

Calyx naked, 5-fid, generally angulated. Style multifid at its apex. Carpels capsular, 5–30, whorled round an axis, more or less united among themselves, 1-celled, one- or many-seeded, awned or awnless at the apex.

*Name*, applied by Theophrastus to a Malvaceous plant, according to some; or to the common *Water-lily*, according to Adanson.

SECT. 1. *Carpels 5–12, one-seeded, not inflated*.

\* *Peduncles shorter than the petioles, or of nearly the same length, leaves ovate or oblong*.

1. *Sida Jamaicensis*. *Common Broom-weed*.

Leaves ovate serrated obtuse tomentose, peduncles axillary solitary 1-flowered very short, carpels 5 two-horned.

*Sida humilior foliis ovatis serratis distiche sitis*, *Browne*, 280.—*S. Jamaicensis*, *Cav. diss.* I. 17. t. 2. f. 5.—*Swartz, Obs.* 258.

*HAB.* Common on dry hot plains.

*FL.* After rains.

Suffruticose, with branches spreading, terete, hirsute with stellated hairs. Leaves distichal, ovate, obtuse, serrated, with the teeth subaristate, nerved, tomentose with stellated hairs, ciliated, hoary beneath : petiole one-fourth of an inch in length, terete, tomentose. Stipules setaceous, length of the petiole. Petiole scarcely half the length of the petiole, accompanied by a short flowering branchlet. Bractees setaceous. Calyx 5-agonal, nerved, externally stellato-tomentose ; divisions acuminate. Petals obliquely cordate, white, or of a pale buff colour. Ovary 5-agonal : styles 5, reflex : stigmata capitate. Carpels 5, bistrostrate.

This plant has some resemblance to the following species ; but may readily be distinguished by its growing in low warm situations, by being tomentose, by the flowers being nearly white, and by the carpels being only 5 in number.

## 2. *Sida trivialis*. *Way-side Broom-weed*.

Leaves ovato-lanceolate acute dentato-serrated minutely stellato-puberulous, peduncles axillary solitary 1-flowered scarcely longer than the petiole, carpels 8-10 shortly bi-cuspidate.

*Malva erecta minor carpinii folio, flore luteo, seminibus simplicibus aculeo-longiori donatis, Sloane, I. 218.*—*Sida Balbisiana, Bertero, De Cand. Prod. I. 460.*

HAB. Common by the roadsides and in ditches.

FL. Autumn.

Suffruticose, about a foot in height : branches alternate, distichal, terete, stellato-pubescent. Leaves ovato-lanceolate, acute, rounded and entire at the base, the rest of the margin dentato-serrated, subglabrous above, minutely stellato-puberulous beneath, nerved : petiole short. Stipules nearly twice the length of the leaf, lanceolate, 3-nerved, ciliated. Peduncles the third of an inch in length, scarcely longer than the petiole, axillary, solitary, 1-flowered. Flowers orange-yellow, size of a shilling. Calycine segments ciliated. Petals obliquely obcordate. Column of the filaments stellato-puberulous. Ovary spherical, truncated : styles 10 : stigmata obtuse. Carpels usually 10, bicuspidate at the inner and upper angle : seed solitary.

Notwithstanding some unimportant points of difference, this plant is evidently the same with that found by Bertero at Porto-Ricco, and to which he gave the name of *S. BALBISIANA*. The leaves vary in being more or less elongated, and in being either rounded or approaching to acute at the base. It is very common in the Port-Royal mountains. The branches of this, as well as of some of the other species, are employed, tied together in a bundle, as a broom by the Negroes. The leaves also

and tender shoots, are made use of as substitutes for soap. Rubbed up with water, they form a lather, which may be employed in shaving, when the skin is in an irritable state, not admitting of the use of soap.

3. \* *Sida ciliaris*. *Procumbent Broom-weed*.

Leaves oblongo-elliptic retuse serrato-dentate towards the apex, peduncles axillary subterminal solitary very short, stipules of the same length or longer than the petiole ciliated, carpels 7 muricated shortly birostrate.

*Malva minor supina*, flore coccineo, seminibus asperis, *Sloane*, l. 217. t. 137. f. 2.—*Malva minima supina*, *Browne*, 282.—*Sida ciliaris*, *Cav. diss.* I. t. 3. f. 9.—*Swartz*, *Obs.* 257.—*De Cand. Prod.* I. 461.

HAB. Common in dry waste places, and pastures.

FL. July—December, after rains.

Suffruticose, procumbent at the base, terete, hirsute with appressed stellated hairs. Leaves at the ends of the branchlets, elliptic, approaching to oblong, retuse, serrato-dentate and ciliated towards the apex, glabrous above, stellato-hispid beneath, scarcely more than half an inch in length: petiole half the length of the leaf. Stipules setaceous, ciliated, rather longer than the petiole. Flowers small, red, shortly peduncled, axillary, solitary. Calyx 5-partite: segments ciliated. Petals entire. Anthers 10. Style 7-partite, longer than the stamens. Carpels 7, muricated, shortly birostrate at the apex.

\* \* *Peduncles elongated and distinctly jointed, leaves oblong.*

4. *Sida minor*. *Lesser Broom-weed*.

Leaves oblong and rounded at the base, sometimes ovate and subcordate, serrated subglabrous above stellato-puberulous beneath, peduncles axillary solitary 1-flowered rather longer than the petiole jointed, carpels 5 shortly bicuspidate.

HAB. Dry situations, Port-Royal mountains.

FL. July—November.

Suffruticose, about 8 inches in height: branches compressed, very minutely stellato-puberulous. Leaves, in old plants, ovate and subcordate, in young ones, oblong and rounded at the base, crenato-serrated, and incano-puberulous above, incano-puberulous with stellated hairs beneath. Stipules half the length of the petiole, setaceous, ciliated. Peduncle jointed above the

middle, 1-flowered, rather longer than the petiole. Flowers rather small, yellow. Calyx 5-agonal, 10-nerved, with the segments acute. Stamens 12-15, column minutely stellato-puberulous: anthers globose, yellow. Styles 5, patenti-reflected, longer than the filaments: stigmata capitate. Carpels 5: seeds solitary, 3-gonal, black.

The leaves vary in form in different plants; and I have even observed ovate and oblong leaves, on different branches of the same plant.

### 5. *Sida erecta*. *Erect Broom-weed*.

Erect slightly hoary, leaves linear rounded at the base serrulated, peduncles axillary solitary 1-flowered length of the petiole, carpels 8-10 bi-aristate.

HAB. Common near Half-way Tree.

FL. After rains.

Suffruticose erect, about a foot in height: branches few subsimple, slightly compressed, somewhat hoary, puberulous with minute stellated hairs. Leaves an inch or more in length, linear, obtuse, serrulated, minutely stellato-puberulous, hoary beneath: petiole filiform, nearly half the length of the leaf. Stipules setaceous, ciliated, nearly as long as the petiole, deciduous. Peduncles axillary, solitary, of the same length as the petiole articulated below the flower. Flowers small in comparison with those of the other Jamaica species. Calycine segments, acuminate. Petals yellowish white, veined with pale pink. Styles 8-10: stigmata capitate of a pink colour. Carpels 8-10, bi-aristate; awns length of the calycine segments, reversely hispid.

A very common plant in pastures at the lower part of the plain of Liguanea. The flowers are open from 9 o'clock in the morning, till 3 in the afternoon.

### 6. *Sida ruderata*. *Rank Broom-weed*.

Leaves oblongo-lanceolate obtuse mucronate crenato-serrate, pedicels axillary much longer than the petiole jointed, carpels 8-10 bicuspidate.

*Malva minor erecta betonicæ folio, flore luteo, semine duplici rostro prædita*, Sloane, I. 217.—*Sida rhombifolia*, Willd. *Sp.* III. 740.—*Swartz, Obs.* 257.—*Cav. diss.* I. 23. t. 3. f. 12.

HAB. Common in damp shady situations.

FL. Throughout the year.

Suffruticose, 1 2 feet in height: branches erect, slightly compressed, tomentulose with minute stellated hairs. Leaves oblongo-lanceolate, obtuse, apiculated, crenato-serrated, minutely stellato-puberulous above, whitish and stellato-tomentulose

beneath, nearly three inches long, and scarcely 1 broad: petiole short. Stipules subulate, of the same length as the petiole. Peduncles axillary, solitary, much longer than the petiole, but shorter than the leaf, filiform, jointed above the middle, minutely stellato-tomentulose. Styles 10-11, spreading: stigmata capitate, white. Carpels 10-11, biaristato-cuspidate: seed solitary. 3-gonal, black.

The leaves vary in size and also in shape; they are largest in damp situations. I have changed the specific designation as not at all applicable to the form of the leaves.

\* \* \* *Peduncles elongated, leaves cordate.*

7. *Sida arguta.* *Sharp-leaved Broom-weed.*

Leaves cordate attenuato-acuminate serrated glabrous except the petiole and under surface of the nerves, peduncles axillary solitary 1-flowered longer than the petioles, carpels 5 bi-aristate.

*Swartz, Fl. Ind. Occ.* 1205.

HAB. Common on the south side of the Island, especially along the fences.

FL. Autumn, after rains.

Suffruticose, erect, about 2 feet in height: branches slender, subglabrous. Leaves cordate, acuminate, irregularly serrato-dentate, minutely puberulous, nerved,  $2\frac{1}{2}$  inches long, and nearly 1 broad: petiole  $\frac{3}{4}$  of an inch long, pubescent. Stipules subulate. Peduncles an inch and a half long, capillary, puberulous, jointed a little below the calyx. Petals orange-yellow. Filaments free at the top, spreading. Styles 5, longer than, and reflected below the stamens: stigmata capitate. Carpels 5, bi-aristate: awns nearly as long as the carpels.

It is remarkable that in this plant the hairs are not arranged, as in the other species belonging to this genus, in a stellated manner.

8. *Sida althæifolia.* *Mallow-leaved Broom-weed.*

Leaves cordate obtuse serrato-crenate tomentose, peduncles axillary shorter than the petiole accompanied by a short peduncle bearing 4-5 pedicelled flowers, carpels 10-12 shortly bi-rostrate 1-seeded.

*Althæa flore luteo, Sloane, I.* 218. t. 136. f. 2.—*Sida althæifolia, Swartz, Prod.* 101.—*Fl. Ind. Occ. ejusd.* 1207.

HAB. Common, on the dry plains and hills.

FL. Autumn.

Suffruticose, erect, 2-3 feet in height: branches hoary, velutino-tomentose, compressed and slightly sulcated towards



the extremities. Leaves nerved, velutino-puberulous above, hoary and tomentose beneath with stellated hairs. Stipules subulate. Flowers of a tawny-yellow colour. Calyx 5-angular, tomentose. Petals rounded at the apex, emarginate, undulated. Styles 10, rarely 12, longer than the stamens, reflected: stigmata capitate. Carpels 10, rarely 12, shortly bi-rostrate: seeds compressed, 3-gonal, black, glabrous.

A common weed in dry lowland pastures, remarkable for its numerous orange coloured flowers, and its hoary woolly branches and leaves.

### 9. *Sida urens*. *Stinging Broom-weed*.

Leaves ovato-cordate acuminate serrato-dentate with blunt teeth hispid above hirsute beneath, flowers axillary and terminal crowded, carpels 5 awnless, stem and petioles hirsute with long stiff hairs.

*Sida urtica*, *Browne*, 280.—*S. urens*, *Swartz*, *Obs.* 261.—*Cav. diss.* I. 15. t. 2. f. 7.

HAB. Common in fences and thickets.

FL. Autumn.

Suffruticose: branches long, erect or subprocumbent; terete purpurascens on the side exposed to the sun, hirsute with long straight hairs, mixed with a minute stellated pubescence. Leaves ovate, cordate, acuminate with the apex blunt, bluntly serrato-dentate, hispid above, and hirsute beneath with stellated hairs, nerved: petiole about an inch in length. Stipules subulate. Peduncle one fourth of an inch in length, accompanied by 1–2 short branchlets, each bearing about 5 flowers crowded together, and late in being developed. Calyx with the divisions acute and ciliated. Petals purpurascens at the claw, with the limb yellow, minutely ciliated. Column of the stamens minutely stellato-puberulous. Ovary 5-lobed: styles 5, spreading: stigmata capitate, crimson. Carpels 5, awnless, stellato-pubescent towards the apex: seeds roundish, compressed, wrinkled, black.

### 10. \* *Sida dumosa*. *Glabrous-leaved Broom-weed*.

Leaves cordate ovate acuminate serrated glabrous on both sides, peduncles many-flowered, carpels 5–6 subrotund scabrous with a very minute stellated pubescence.—*De Cand.*

*Swartz*, *Fl. Ind. Occ.* 1209.

HAB. Thickets.

FL. — ?

Stem erect, smooth. Leaves serrulated, nervose, glabrous on both sides, 2 inches in length: petioles length of the leaves,

pubescent. Panicle terminal. Flowers numerous, crowded, shortly pedicelled, of moderate size, yellow. Calyx 5-agonal at the base, pubescent. Styles 5-6. Carpels 1-seeded.—*Swartz.*

11. *Sida capillaris.* *Capillary panicked Broom-weed.*

Leaves ovate acuminate, rarely subcordate, more usually rounded at the base dentato-serrate hoary stellato-pilose above stellato-tomentose beneath, stipules setaceous, peduncles capillary panicked or simple, carpels 5 shortly bi-rostrate.

*Sida foliis cordato-acuminatis, pedunculis longis tenuissimis capillaribus alaribus, inferioribus simplicibus, superioribus ramosis, Browne, 280.—S. paniculata, Swartz, Obs. 259.—Cav. diss. I. 16. t. 12. f. 5.—S. atro-sanguinea, Jacq. Ic. rar. I. t. 136.—S. capillaris, Cav. diss. I. 10. t. 1. f. 7.*

HAB. Common, in dry gravelly situations.

FL. August—November.

Suffruticose erect about 3 feet high: branches straight, slightly compressed towards their extremities, stellato-hirsute approaching to tomentose. Leaves attenuato-acuminate, unequally serrato-dentate, nerved, about 2 inches long, and nearly 1 broad: petioles short, tomentose. Stipules longer than the petiole, setaceous. Panicles axillary and subterminal: divisions finely capillary: pedicels an inch and a half in length, glabrous, jointed about 3 lines from the flower, coloured, minutely puberulous, incrassated below the calyx. Flowers small, of a crimson colour. Calyx externally puberulous. Petals spreading, oblong, repand, glabrous. Stamens 15: column crimson, minutely stellato-puberulous: anthers yellow. Styles 5, longer than the filaments, spreading: stigmata minutely papillose. Carpels 5, minutely stellato-puberulous.

In the specimens I have met with, it is only the leaves at the bottom of the stem that are subcordate. I have adopted the specific designation of Cavanilles, considering it more distinctive.—This plant is remarkable for its delicate hair-like peduncles, and its small crimson flowers. I have met with specimens, in which the peduncles were 2-3 together, simple, and axillary.

12. *Sida nervosa.* *Clammy Broom-weed.*

Leaves cordate acuminate dentate villous with stellated hairs, stem and branches villous with a viscid capitato-glandulose pubescence, peduncles panicked, calyces nervose, carpels 5 bi-rostrate.

*Bertero, De Cand. Prod. I. 465.*

HAB. Common.

FL. Autumn.

Suffruticose, erect, 3–4 feet high, much branched, terete, viscid to the touch, and somewhat villous with capitate hairs. Leaves 4–6 inches long, pubescent above, hoary and villous with stellated hairs beneath, 3-nerved, besides a marginal pair, veined: petiole of the same length as the leaf, obscurely channelled, slightly villous with a capitato-glandulose pubescence. Stipules small, setaceous, ciliated. Peduncles axillary and terminal, paniced and many-flowered; or there is in the axil of the leaf a one-flowered peduncle about an inch in length and jointed above the middle, accompanied by a short branchlet, bearing about 5 pedicelled flowers. Flowers yellow. Calyx prominently nerved, pubescent with capitato-glandulose hairs, ciliated; segments acuminate. Petals obcordate, ciliated with minute capitate hairs, but otherwise glabrous. Stamens about 16. Styles 5, blood-coloured, with capitate stigmata. Carpels 5, rostrate; the beaks short, subulate, hispid. Seeds solitary, ovoid, with a carunculated apicula.

A very common plant. The leaves are occasionally variegated with yellow.

SECT. 2. *Carpels one- or many-seeded, inflated.*

### 13. *Sida viscosa*. *Viscid Broom-weed*.

Leaves ovato-cordate acuminate dentate viscoso-tomentose, peduncles axillary shorter than the petiole, carpels 5 bi-cuspidate.

*Althæa populi folio villosa*, *Sloane*, I. 222. t. 139. f. 4.—*Sida viscosa seu villosa*, *Browne*, 280.—*S. Viscosa*, *Swartz*, *Obs.* 239.

HAB. Savannahs. Common in Salt-Ponds.

FL. November.

Suffruticose, erect, 2–4 feet in height: branches suberect, terete, stellato-tomentose with the longer hairs tipped with a viscid transparent globule. Leaves attenuato-acuminate, viscid, stellato-villous. Stipules subulate. Peduncles axillary, subsolitary, short, scarcely half an inch in length, villous. Flowers yellow. Calyx externally stellato-villous and viscid with pellucid shining globules; segments lanceolate, attenuato-mucronate. Petals subovato-rotund, repand at their extremity, glabrous. Stamens numerous. Styles 5, erect, rather longer than the stamens: stigmata obtuse. Carpels 5, globose, compressed, bi-rostrate, stellato-villous, subinflated, 1-seeded: seed globose, slightly compressed.

This is the plant described and figured by *Sloane*. According to him the carpels are 6; whereas *Swartz* gives 7 as their number.

14. *Sida periplocifolia?* *Periploca-leaved Broom-weed.*

Leaves cordate lanceolato-ovate tapering gradually towards the apex subentire glabrous above hoary and stellato-villous beneath, panicle terminal lax with its divisions filiform, carpels 5 subinflated one-seeded.

*Alcea populifolia*, folio incano integro, *Sloane*, I. 222. t. 139. f. 3.—*Sida erecta*, foliis integris subtus incanis, *Browne*, 280.—*Sida periplocifolia*, *Swartz*, *Obs.* 260.—*Richard*, *Act. Soc. Hist. N. Par.* p. 111.?

HAB. Common in the Lowlands.

FL. After the Autumnal rains.

Suffrutescent, erect, 3–4 feet in height: branches few, subsimple, coloured, stellato-villous. Leaves attenuated at the apex which is obtuse, deep green and glabrous above, hoary and stellato-villous beneath, nerved. Panicle terminal, 1–2 feet in length, loose: common peduncle slender, terete, stellato-pubescent; its divisions filiform, spreading, few-flowered: pedicels an inch and a half in length, jointed above the middle, delicately filiform, puberulous with very minute capitate hairs, in general two together, bearing a rather small yellow flower. Calyx externally purple and most minutely puberulous: divisions acute. Petals obovato-cuneiform spreading. Filaments scarcely united into a column, subpolyadelphous. Styles 5, long, with capitate stigmata. Carpels 5, subinflated, triquetrous, with the apex beaked: seeds solitary, angulose, with the angles puberulous.

This species is not rare; and is remarkable for the stamens being, as it were, broken up, and polyadelphous, the leaves entire or nearly so, the stem slender, and the divisions of the panicle capillary. This is decidedly the plant of *Sloane*. I have never, however, observed more than one seed in each carpel. A plant bearing the same specific designation, and a native of Ceylon, has the carpels 3-seeded.

15. *Sida peduncularis.* *Purple-flowered Broom-weed.*

Leaves cordate acuminate crenate green and velvety above hoary and tomentose beneath, peduncles axillary solitary longer than petioles, carpels 15 inflated, nine-seeded, seeds small puberulous.

*Abutilon pedunculare*, *H. B. & Kunth*, *nov. gen. Amer.* V. 273.—*Sida peduncularis*, *De Cand. Prod.* I. 469.

HAB. Common in the neighbourhood of Half-way Tree.

FL. After the May and Autumnal rains.



Suffruticose, annual, erect, 2–3 feet in height: branches few, simple, terete, pilose with long hairs intermixed with a glanduloso-capitate pubescence. Leaves cordate, acuminate, crenated, nerved, veined, green and velvety with stellated hairs above, hoary and stellato-tomentose beneath: petiole terete, elongated, pilose like the branches. Stipules  $\frac{1}{2}$  an inch in length, subulate, hairy, deciduous. Peduncles axillary, solitary, rather longer than the petioles, articulated below the flower, hairy like the branches. Flowers large, showy, of a dirty crimson colour, opening about 9 o'clock in the morning, and closing about 4 o'clock in the afternoon. Calyx 5-fid below the middle: divisions acuminate, nerved. Petals twice the length of the calyx, veined, minutely ciliated. Stamens numerous. Styles 15, spreading, tinged with purple, length of the stamens: stigmata capitate. Carpels 15, inflated, shortly beaked at the outer angle, densely hirsute with greenish yellow hairs, 9-seeded.

This is a rather beautiful species. It was discovered by Humboldt and his companions in shady situations by the banks of the Amazon.

16. \* *Sida Americana*. *American Broom-weed*.

Leaves cordate oblong undivided tomentose, peduncles shorter than the leaf, carpels 12 tomentose, acuminate length of the calyx.

*Willd. Sp. III. 750.—De Cand. Prod. 470.*

HAB. Jamaica.

FL. —?

Leaves twice as long as they are broad, very tomentose, serrated, double the length of the petioles. Calyx tomentose. Carpels 12, size of those of *S. ABUTILON*, terminating, at the outer angle, in a lanceolate point, as long as the carpel itself.

17. *Sida abutiloides*. *Savannah Broom-weed*.

Leaves cordate acuminate bluntly toothed villous above, hoary viscid and tomentose beneath, peduncles axillary solitary scarcely longer than the petiole, carpels 10 acuminate length of the calyx 3-seeded.

*Lavatera Americana*, *Swartz, Obs. 263.—Sida abutiloides*, *De Cand. Prod. I. 470.*

HAB. Common in dry Savannahs and thickets on the south side of the Island.

FL. January.

Suffruticose, erect, about 3 feet high: branches compressed at their extremities, subflexuose, hispid-tomentose, with stellated hairs. Leaves ovate, cordate, acuminate, dentate, nerved,



green and villous above, hoary and tomentose beneath with stellated hairs tipped with viscid globules: petiole compressed. Stipules lineari-lanceolate. Peduncles axillary, solitary, scarcely longer than the petiole, terete, hispid-to mentose with stellated hairs, 1-flowered. Calyx 5-partite, externally velvety-pubescent; divisions acuminate. Petals orange-coloured, spreading. Ovary globular, 10-ribbed: styles 10, spreading, reflected: stigmata capitate. Carpels usually 10, acuminate at the apex, length of the calyx, pubescent-to mentulose, 3-seeded: seeds black, subreniform, reticulato-granulose.

There is very little difference between the specific character of this, and that of *S. Americana*, as given by De Candolle, except, that in the latter, the leaves are oblong.

### 18. *Sida elata*. *Tall Broom-weed*.

Leaves subrotundo-cordate acuminate crenatodentate velvety and hoary beneath, flowers paniced, petals subreflex, carpels 8-10 beaked generally 3-seeded.

*Sida gigantea*, Jacq. *Schænb.* II. 8. t. 141.?

HAB. Below Pimento-grove, St David's.

FL. January.

A shrub, erect, 6-12 feet in height: branches terete, hoary, minutely stellato-puberulous. Leaves crenated, 5-nerved, reticulato-venose, green and stellato-velutine above, hoary and velutino-to mentulose beneath, 5 inches long and 4 broad. Stipules setaceo-subulate. Panicle terminal, lofty, many-flowered: flowers orange-yellow: common peduncle and its divisions hoary and velvety: pedicels half an inch in length, 1-flowered. Calyx externally hoary and puberulous: divisions ovato-lanceolate. Petals obovato-subrotund, spreading, subreflex. Column of the filaments stellato-puberulous. Ovary globose, pubescent: styles 8-10 (usually 9) capillary: stigmata obtuse. Carpels 8-10, beaked at the outer angle, slightly inflated, puberulous, 2-3-seeded: seeds angulose, puberulous.

This plant agrees with the character given of *SIDA GIGANTEA*, except, that in the latter, the leaves are *acuminato-tricuspidate*. The flowers, carpels, and leaves of this resemble very much those of the preceding species. It is the loftiest of the genus that we have in Jamaica. It is a rather showy plant, and, as it rises above the more lowly shrubs, readily attracts the eye of the passenger.

## ORDER XXV. BOMBACEÆ.

Calyxine sepals 5, cohering in a campanulate or cylindrical tube, either truncated or with 5 divisions, naked or involucelled with a few minute bracteoles at the base. Petals 5, regular; or, when the inside of the calyx is coloured, none. Stamens 5, 10, 15, or more: filaments cohering at the base into a tube, which is soldered to the tube formed by the base of the petals, divided at the apex into 5 parcels, each of which is 1- or poly-antherous: anthers 1-celled, linear, reniform or anfractuose. Ovary of 5, rarely 10, carpels: styles of the same number as the carpels. Fruit variable: seeds generally wrapped in wool, or pulp; exalbuminose with the cotyledons corrugated or convoluted, or albuminose with the cotyledons plain.

Trees or shrubs, natives of the Tropics. Leaves alternate, petiolate, bi-stipulated: pubescence stellated.

The Cotton-tree tribe are peculiar to the hottest parts of the globe. Like the Mallow tribe, from which they can with difficulty be separated, they abound in a mucilaginous juice, and have no known deleterious property.

## I. HELICTERES.

Calyx tubulose, subquinquefid. Petals 5, ligulato-unguiculated subdentate towards the apex. Stamens 5, 10, or 15, monadelphous for some distance, with a multifid urceole at the apex, with some of them sterile. Ovary on a long stipe: styles 5, concrete at the base. Carpels 5, one-celled,  $\infty$ -seeded, internally dehiscent, frequently twisted into a regular spire, sometimes straight. Seeds exalbuminose, cotyledons spirally convoluted.—*De Cand.*

*Name*, from ἑλῖξ, a screw, hence ἐλίσσῃς, any thing wound round or coiled; applied to this genus, from the manner in which the fruit is twisted.

1. *Helicteres Jamaicensis*. *Jamaica Screw-tree*.

Decandrous, leaves cordateserrated pubescent above velutino-tomentose beneath, flowers axillary subterminal few corymbose, fruit ovate densely tomentose.

*Abutilo affinis arbor, cujus fructus est styli apex acutus quatuor s. quinque siliquis hirsutis, funis ad instar in spiram convolutis*, *Sloane*, I. 22.—*Helicteres villosa et fruticosa*, *Browne*, 330.—*H. Jamaicensis*, *Swartz*, *Fl. Ind. Occ.* 1156.

HAB. Lime-stone districts. Not rare.

FL. June—December.

Stem arborescent, 10–12 feet in height : branches spreading, compressed towards their extremities, farinoso-tomentose with stellated hairs. Leaves cordate, ovate, serrated, triply-nerved, green and slightly stellato-pubescent above, pale and densely stellato-tomentose beneath, 6 inches long, and the same broad : petiole about 2 inches long, terete. Stipules subulate. Peduncle axillary, shorter than the leaf, about 3-flowered, terete, farinoso-tomentose : flowers white, not showy, pedicelled. Calyx bell-shaped, compressed, externally farinoso-tomentose with stellated hairs, 2-lipped ; upper lip longer than the lower, and bifid ; lower lip 3-fid. Petals 5, longer than the calyx, unequal, deciduous ; the 2 upper ones broader, oblong, concave ; the 3 lower narrower. Column of the filaments about 3 inches long, terete, curved. Fertile stamens 10, very short ; sterile, 5. Ovary hirsute : style subulate : stigmata 5-fid. Carpels 5, twisted into a spire, externally densely farinoso-tomentose with stellated hairs, which, when ripe, are easily abraded, free for a few lines at the apex and dehiscent internally : seeds numerous, oval, compressed, angulated.

A decoction or infusion of the leaves and fruit, may be used as a substitute for a similar preparation of the *Marsh-mallow*, and given as a drink in fevers, consumption, cough, &c. A decoction of the roots of one species, *H. SACAROLHA*, is considered, in Brazil, as anti-syphilitic.

II. *ADANSONIA*.

Calyx naked, deciduous, 5-partite. Petals 5, united as far as the middle. Urceole of the stamens dilatato-expanded at the upper part. Style very long : stigmata many. Capsule indehiscent, woody, 10-celled ; cells many-seeded, filled with a farinaceous pulp around the seeds.

*Named*, in honour of Michael Adanson, a celebrated French Botanist, author of a *Voyage to Senegal*, *Familles des Plantes*, and other works.

1. *Adansonia digitata*. *Baobab, or Monkey Bread-fruit.*

*A. Baobab*, *Gærtn. de Fruct.* II. 253. t. 135.—*A. digitata*, *Cav. diss.* V. 298. t. 15.

HAB. Cultivated.

FJ. June.

The trunk is thickest at the base, where it is frequently 25 feet in diameter. The leaves are composito-palmated, and are deciduous in the month of November, leaving, for a time, the branches bare. Flowers large, white.

The Baobab is to be found in Senegal, and across Africa, as far as Abyssinia. It has been introduced into this Island, and may be frequently met with. It is the largest, and, according to Adanson, the longest lived of organic bodies. This Naturalist found some trees in the Magdalene Islands, in the neighbourhood of Goree, which calculating, from some names inscribed on them, dated in the 14th and 15th centuries, must have survived upwards of 6000 years. Much has been said, respecting the valuable properties of different parts of this tree. The Negroes in Africa dry the young leaves, and mix them in a state of powder with a dish called *couscou*, prepared by stewing yams, or other similar roots with a small portion of animal food, in order to improve the flavour and taste. They are under the impression, that they have an effect in moderating excessive perspiration. Adanson states, that, during his residence in Africa, he took a pint of the infusion of the dried leaves every morning and evening; and he ascribes to this, his having escaped fever and diarrhœa, from which his companions suffered severely. The bees in Abyssinia, according to Bruce, excavate the stems of the Baobab, and there build their hives; and he states, that the honey is more esteemed, than what is procured from other situations. We are informed, that in Africa, the trunk, hollowed out, is employed as a coffin for persons of distinction; and that the bodies are by this means preserved, as if they had undergone the process of embalming. The fruit of the *Baobab* has received the name of the *Monkey Bread-fruit*, from its being a favourite food of that class of animals. It is about the size of a lemon, and of a deep brown colour: the cells are filled with an acid pulp, refreshing and agreeable to the taste, and forming with sugar a cooling drink; resembling lemonade, and much recommended in fevers. It has been given, according to Goldberry, a traveller in Africa, diffused in milk or water, for hemoptysis, and mixed with tamarinds, for dysentery, and with gum for uterine discharges. We are informed by Dr Frank, that the caravans, which arrive at Cairo from Darfour and from Nubia, are always provided with a supply of this fruit, lest dysentery should make its appearance. When a case occurs, the patient is immediately confined to a



very sparing diet, and a weak decoction of tamarinds is given as a drink. Should the symptoms continue, then after some rhubarb as a laxative, the red and friable spongy part of the fruit is first given; and should that fail, then the rind is made into a paste with water, and frequent doses are taken in the course of the day. Dr Frank states, that he tried this practice in several instances; and in all of them the disease yielded as if by enchantment.\* The *Lemnos earth*, first noticed by Prosper Alpinus as an article of the *Materia Medica*, formerly imported from Ethiopia into Europe, was the dried pulp of this fruit. The analysis of Vauquelin gives as its composition, starch; a gum; an acid analogous to Malic, but not chrysalizable; a sugar resembling that of grapes; and a woody parenchyma. (*Annales du Museum*, VIII. 1.)

### III. BOMBAX.

Calyx naked quinquefid or truncated. Petals 5, slightly connected together at the base, and with the column of the stamens. Stamens many, monadelphous, or pentadelphous at the apex. Capsule large, 5-celled, 5-valved, woody, with the cells many-seeded. Seeds thickly wrapped in wool, albuminose.—*De Cand.*

*Name*, from  $\beta\omicron\mu\beta\upsilon\zeta$ , one of the Greek names of cotton.

#### 1. Bombax Ceiba. *South American Cotton-tree.*

Stem prickly, leaves palmate 5-foliate, fruit turbinate concave at the apex.

*B. quinatum*, Jacq. *Amer.* 192. t. 176. f. 70.—*B. Ceiba*, Cav. *diss.* V. 296. t. 152. f. 2.

HAB. ———?

FL. ———

This has long been, I consider incorrectly, regarded as a native of Jamaica. I have not met with it in any of the districts I have visited; and I have no doubt but that its locality is confined to the neighbouring Continent.

### IV. ERIODENDRON.

Calyx naked, obtusely 5-lobed. Petals 5, connected with each other, and with the column of the stamens. Stamens united at the base into a short

\* Dictionnaire de Matière Medicale, i. 73.



tube, pentadelphous at the apex, with the brotherhoods connected throughout, filiform, bearing at the apex 2-3 linear or winding anthers (so as to resemble a single anther). In other respects as in the genus, *BOMBAX*.

*Name*, from *επιον* *wool* or *down*, and *δενδρον* *a tree*.

1. *Eriodendron anfractuosum*. *West India Cotton-tree*.

Anthers anfractuose, leaflets entire, stems generally aculeate.

*Gossypium arboreum maximum spinosum*, *Sloane*, II. 72.—*Bombax foliis digitatis, brachiis erecto-patentibus*, *Browne*, 277.—*B. pentandrum*, *Jacq. Amer.* 191. t. 176. f. 70.—*Cav. diss.* V. 293. t. 151.—*Eriodendron anfractuosum*, *De Cand. Prod.* I. 479.—*Bot. Mag.* 3360.

*HAB.* Common every where.

*FL.* Beginning of the year.

A lofty tree with the stem straight, columnar, armed when young with strong acuminate spines; in some, dividing low down; in others rising to the height of 50-80 feet before it gives off the branches. Occasionally it is ventricose at some distance from the ground, so that it is thicker there, than it is towards the root. In old trees, several broad spurs, like buttresses, are stretched to the distance of several feet or even yards. In situations where it is sheltered from the east or north, our prevailing winds, the branches form a large and regular head, and afford an extensive shade. But where it is less favourably situated, and especially if the stem be lofty, the branches may be observed to be deficient on the side which is exposed. The branches are horizontal or spreading. Leaves palmate: leaflets 6-7, oblongo-lanceolate, glabrous. Flowers very numerous, strewed in great abundance below the trees, during the period of flowering; of a pale rose-colour, giving out a peculiar smell, compared by some to that of *cheese*, and by others to that of *primroses*. Calyx persistent, obtusely 5-fid, with the segments unequal. Petals obovato-oblong, shining and tinged with purple internally, sericeo-pubescent externally, reflected. Column of the filaments entire and tubular at the base, dividing into 5 erecto-patent trigonal branches: anthers linear, winding in different directions, forming three circumvolutions, constituting a large oblong, apparently single, anther. Ovary concealed in the tube of the column: style length of the stamens, terete, purplish: stigmata of 5 lanceolate pellucido-puberulous lobes. Capsule ovali-oblong, terete, obtuse, 5-celled, 5-valved: valves

approaching to woody, caducous : seed many, subrotund, brown : wool very abundant.

The specific designation ANFRACTUOSUM, is derived from AM and FRANGO, and means *the winding or bending of a road or path, in and out, or backwards and forwards.*

The leaves are deciduous and fall off early in January. Soon after, the flowers are produced at the end of the branchlets, followed by the fruit ; after which the young leaves make their appearance.

This is a tree of a rapid growth, and is readily propagated from stakes or posts planted in the ground. A superb row of these trees, at Belvidere pastures, St Thomas in the East, was established from posts fixed in the earth, in making a common rail fence. Perhaps no tree in the world has a more lofty and imposing appearance, whether overtopping its humbler companions in some woody district, or rising in solitary grandeur in some open plain. Even the untutored children of Africa are so struck with the majesty of its appearance, that they designate it the *God-tree*, and account it sacrilege to injure it with the axe ; so that, not unfrequently, not even the fear of punishment will induce them to cut it down. Even in a state of decay, it is an object of their superstitious fears : they regard it as consecrated to evil spirits, whose favour they seek to conciliate by offerings placed at its base.

The large stems of this tree are hollowed out to form canoes. The wood is soft and subject to the attack of insects : but if steeped in strong lime water, it will last for several years, even when made into boards or shingles, and in situations exposed to the influence of the weather. The young leaves are sometimes dressed by the Negroes as a substitute for okras. The wool has been employed in stuffing mattresses ; and is said to answer the purpose equally well as feathers, but to be rather warm. The caterpillar of the Macaca beetle, considered by some, when gutted and fried, as a very great delicacy, is to be found in abundance in the decayed stems of this tree.

## V. OCHROMA.

Calyx at the base tubulose subinfundibuliform scarcely 5-cleft, with 3 of the lobes rounded, and 2 somewhat acute. Petals 5 longer than the calyx. Anthers anfractuose. Stigmata 5. Capsules valvular clothed within with a silky wool. Seeds oblong.

*Name*, supposed to be derived from *ωχρος* *yellow*, the flowers being of that colour.

1. *Ochroma Lagopus*. *Down-Tree*.

Leaves cordate 5-angulato-sublobate denticulated pubescent beneath.

*Swartz, Fl. Ind. Occ.* 1144. t. 23.—*Browne*, 286.

HAB. Common in the lower mountains and in damp situations.

FL. January, February.

A tree 20-40 feet in height: stem smooth, ash-coloured: branches comparatively few, patulous, fragile. Leaves large: petioles horizontally spreading, twice the length of the leaves. Peduncle terminal, solitary, thick, terete, 3-4 inches long, one-flowered. Flowers erect, 3-4 inches in length, of a pale rufescent or yellowish colour. Involucre 3-leaved, deciduous. Calyx tubulose, approaching to funnel-shape, coriaceous, of a red-ferruginous colour, internally incano-tomentose, externally tomentulose with minute stellated hairs: lobes keeled on the back; 2 of them subacute; the other 3 rounded by the margin being membranaceo-expanded. Petals twice the length of the calyx, lineari-oblong, wedge-shaped at the base, with the limb somewhat expanded, thinnish, longitudinally veined, minutely puberulous, undulated. Filaments united to form a simple cylindrical angular column; anthers 5, cohering, spirally twisted marked with labyrinthine lines, slightly 5-fid at the apex. Ovary conical, 5-sided; style cylindrical, 5-sided, enclosed in the tube of the filaments: stigmata 5, an inch in length, protruding beyond the anthers, spirally twisted and sulcated. Capsule a foot or more in length, longitudinally channelled, 5-celled, 5-valved; valves woolly within, revolute at the margin; wool of a pale rufous colour. Seeds many, oblong.

This tree is very rapid in its growth, attaining its full height in twelve or thirteen years. Its appearance bears some resemblance to the Mahoe; but unlike it, the wood is soft and spongy, and only adapted as a substitute for cork. It hence is known by the names of the *bombast-Mahoe*, and *Cork-wood*. The bark is well adapted for the purpose of making ropes. The down, which envelopes the seeds, is collected, and is employed for stuffing pillows, mattresses, &c. There is no doubt but that it might be made into cloth, and employed in hat-making and other manufactures. A gummy juice is said to exude from the branches when broken.

## ORDER XXVI. BYTTNERIACEÆ.

Calyx naked or surrounded by an involucre; sepals 5, more or less united at the base; æstivation

valvular. Petals 5, or none, hypogynous. Stamens in number equal, or 2-3 or many times the number of the sepals or petals, monadelphous: anthers 2-celled, turned outwards. Carpels 5, rarely 3, or uniting to form a single ovarium. Styles of the same number as the carpels. Fruit capsular. Albumen oily or fleshy, rarely awanting. Embryo straight, with an inferior radicle: cotyledons leafy, or very thick.

Trees or shrubs: when pubescent, the hairs are star-shaped: leaves alternate, simple, stipulated. This Order differs very little from the two preceding, except that the anthers, in this, are bilocular. Like the Mallow tribe, they give out, when infused in water, a mucilaginous juice. It is from the STERCULIA TRAGACANTHA that the gum Tragacanth is obtained. The flowers of many of the species, such as the ASTRAPÆA WALLICHII, a native of India, are said to be among the most beautiful in the world.

## I. STERCULIA.

Calyx 5-lobed, subcoriaceous. Stamens monadelphous, situated on a short sessile or stalked urceole: anthers 10, 15, 20, in one or two rows, solitary or ternately aggregate. Ovary stipitate, or sessile. Carpels follicular, 5, distinct, 1-celled 1- or many-seeded, dehiscent superiorly by a broad slit: albumen of the seeds oily; cotyledons plain, leafy, equal.—*De Cand.*

*Name*, from STERCULIUS the Roman god of the *privy*, which again is derived from STERCUS *excrement*. The leaves of one species, and the flowers of another, have a disagreeable fœtid odour.

### 1. Sterculia acuminata. *Cola-nut*.

Leaves oblong acuminate very entire glabrous on long petioles, flowers axillary paniced, anthers biserial sessile, carpels 1-seeded.

*De Cand. Prod.* I. 482.

HAB. Cultivated.

FL. May.

This is a tree of moderate height, introduced into this Island from the hottest parts of Africa, of which it is a native. The fruit is known by the names of Cola, Kolla or Colla, and appears from the writings of the older Botanists to have been imported and known in Europe, long before they became acquainted

with the plant. Mention is made of it by several modern travellers; such as Tuckey and Bowdich. It is about the size of a citron, formed of 5 ovali-reniform carpels, each containing a single seed, as large as a chestnut, of an ovoid shape, pale red externally, of a violet tinge internally, and of a fleshy consistence. The natives of the part of Africa where the tree is indigenous, chew and even eat the seed, which is acrid and acid to the taste, but has the property of imparting a sweetish taste to water which is brackish or bitter. In such esteem is it held, that it is an important article of commerce among the African tribes, and is a common present made by them to Europeans. The Cola is stomachic, and sialagogue, and is said to allay hunger and to be useful in diseases of the liver.

## 2. *Sterculia Ivira. Bastard Mahoe.*

Leaves ovate glabrous acuminate entire rarely 3-lobate, flowers paniced hermaphrodite decandrous, carpels covered at the base with stiff setose hairs.

*Swartz, Fl. Ind. Occ.* 1160.

HAB. Woods near Roaring-River, St Thomas in the East.  
FL. —?

## II. THEOBROMA.

Calyx of 5 sepals. Petals 5, fornicate. Nectary urceolate, with 5 horns. Filaments 5, each with two anthers. Style filiform; stigma 5 parted. Capsule 5-celled, without valves: seeds in a buttery pulp; albumen 0; cotyledons thick, oily corrugated.

*Name*, from Θεός *God*, and βρωμα *food*, in allusion to the nutritive quality of the beverage obtained from the seeds of the following species. The Mexicans give it the name of *Cacao-quahuil*; which has been in a great measure retained in the word *Chocolate*.

## Theobroma Cacao. *Chocolate Nut.*

Leaves entire smooth ovate oblong acuminate.

HAB. Cultivated.

FL. Throughout the year.

Cacao, *Sloane*, II. 15. t. 160.—Cacao sativa, *Lam. Enc.* I. 533.—*Ill.* t. 653.—Cacao minus, *Gærtn. de Fruct.* II. 190. t. 122.—Theobroma cacao, *Linn. Sp.* 1100.—*Bot. Cab.* 545.

This is a tree of moderate height, (12–16 feet): the trunk upright; the bark brownish; and the wood light and porous. Leaves rather large, lanceolate. Flowers small, reddish, inodorous, numerous, scattered over the trunk and branches. The



fruit is a coriaceous capsule, partaking somewhat of the form of a small cucumber, reddish and marked with 10 grooves externally; internally there are five compartments filled with a gelatinous acid pulp, enveloping the seeds. When ripe, the external surface is either a deep red, or a yellow, and the seeds rattle in the capsule. The tree bears leaves, flowers, and fruit throughout the year. The usual seasons, however, for gathering the fruit, are the months of June and December. The seeds are 25-30 in number; when fresh, they are of a reddish-brown colour. They quickly lose their power of vegetation if taken out of the capsule; but if kept in it, they preserve it for a considerable time.

The Cacao is a native of the inter-tropical parts of South America. It there delights in low rich plains, or in warm moist valleys on the eastern side of the Andes, seldom growing at an elevation beyond 200 feet above the level of the sea. It is there in a state of the highest luxuriance, acquiring a height of from 40 to 50 feet. It is now cultivated in all the islands of America, as well as in India. A moist climate has been found most suitable for it. As the root is of a tapering form, going deep into the ground, it generally fails where the land is hard and clayey. On the contrary, it thrives in a rich black or brownish mould, containing a certain proportion of sand or gravel. Where the land, however, is too rich and damp, the trees may grow to a great size, but they produce very little fruit. It is of importance also, that the situation be sheltered, as the tree, from the softness and brittleness of the wood, is apt to suffer from high winds. Hence a northern exposure has been found particularly unfavourable. The cacao commences to bear about the third year, and continues to do so, where the soil is suitable, and where proper attention to the cultivation has been paid, for twenty-five or thirty years.

In a plantation, the trees are planted like the Coffee in straight lines, leaving to each about 12 feet square. As the scorching rays of the sun are very injurious, it has been found necessary to plant either the *Plaintain* or *Bannana*, or the *ERYTHRINA UMBROSA* in the vacant spaces. This last is what is generally employed in the Caraccas, and is there called the *Bucare*. As for pruning, it is necessary to cut off all the old or superfluous branches, and especially young shoots from the root. The crop is very uncertain, as the tree is exposed to several diseases, the most common of which are induced by injuries inflicted by several kinds of insects, and by parasitic plants.

As the fruit ripens, it is gathered from the tree, either by the hand, or by means of a forked stick. On the Continent the pods are buried in the earth for 30 or 40 days, in order that a fermentation may be induced to remove the mucilaginous matter which surrounds the seeds, and to destroy the vitality of the germen. In the West India islands they are satisfied with

collecting the pods in a heap, where it is allowed to ferment for three or four days. It has been remarked, however, that the seeds cleaned by the latter method, are of a bad colour, and have an acrid taste. The shells are then broken, and the seeds are taken out and freed, by washing, from the mucilaginous substance with which they are covered. They are then spread out to dry; after which they are fit for the market.

The best Cacao comes from Guatemala, Magdalena, and Maracaibo. Next in quality is that from the Caraccas and Trinidad; where it is cultivated to a considerable extent. In this Island the cultivation has of late somewhat revived. The soil and climate of several parishes, such as Portland and St George, are peculiarly well adapted for it. Few objects of cultivation are more productive. A tree in full bearing, according to Pere Lebat, will annually yield 150 lbs. of seeds. If we take 50 lbs. as the average of a plantation of 5,000 trees, which will require about twenty labourers for its management;—then the produce of such a plantation will be 250,000 pounds of Cocoa, which, at the rate of 30s. per 100 lbs., will give £3,750 sterling.

The cultivation of this plant is peculiarly adapted to small settlers. Humboldt remarks that the Cacao plantations in Mexico, have principally been established by persons in humble circumstances.

The Cacao seeds were made use of by the Mexicans, previous to the arrival of the Spaniards, boiled with maize, and roughly bruised between two stones, and eaten, seasoned with capsicum or honey. On the introduction of sugar, an infusion sweetened with this substance, to correct the bitterness of the cacao, came into general use. Soon after, different aromatic substances such as vanilla, pimento and cinnamon, to heighten the flavour, and arnotta to improve the colour, were added, and in this manner the well known paste *chocolate* came to be prepared. The common method of this country, is, by roasting the nut in an open pot, then grinding between two stones, and lastly adding some powdered pimento, and moulding into rolls with the hand. The more improved method is: after the seeds (or Cacao) have been properly roasted and freed from every impurity, to pound them in a mortar, into a coarse powder which is afterwards ground on a stone to an impalpable fineness; it is then again heated, and put into cylindrical or flat moulds, in which it congeals and is fit for use. In the course of the process, the different aromatic and other ingredients, already alluded to, may be added. The best chocolate is said to be prepared in Paris, where steam-power is employed in crushing the nuts; rendering the paste more fine and light, and the different ingredients more intimately mixed.

In preparing the infusion of chocolate for the table, the Spaniards boil it for several hours over a gentle fire, and, in drinking it, make use of very little sugar. Prepared in water,

it is easily digested, so as to be recommended for persons in delicate health, and who have little or no appetite. To render it more nourishing, milk, arrow-root, sago, and even wine may be added. It is a very agreeable beverage to the palate, recruits the strength, invigorates the frame, and is very nutritive. By a late regulation of the British Navy, a certain proportion of chocolate was directed to be served out to each man in place of rum.

I may add, that according to observations of Mr Henley, chocolate, fresh ground, and cooled in tin vessels, becomes highly electrical. A drink, sweetened with sugar, is prepared from the pulp which surrounds the seeds, and is said to be agreeably cooling and refreshing. The husks of the pods are imported into Europe, and a decoction is prepared from them, which serves as a substitute for the more expensive beverage. The seeds of the Cacao were in former times the only substitute for coin among the ancient Mexicans. 'Even in the present day, according to Humboldt, the common people make use of them, reckoning six seeds as equal to a halfpenny.

### III. GUAZUMA.

Calycine sepals 5 distinct or connate into a 2-3-partite calyx. Petals 5, 2-horned at the apex. Stamens slightly monadelphous at the base, forming a very short tube dividing into 5 sterile lobes which alternate with 5 fertile filaments, 3-fid and 3-antherous at the apex. Styles 5 connivent. Capsule lignose, tuberculated, evalved, 5-celled, pierced with a 10-fold series of little holes, many-seeded. Seeds ovate. Cotyledons (according to Kunth) plicate.—*De Cand.*

#### 1. *Guazuma ulmifolia*. *Bastard-cedar*.

Leaves pubescent above, tomentose beneath with stellated hairs.

*Alni fructu morifolia arbor, flore pentapetalo flavo, Sloane, II. 18.*—*Theobroma guazuma, Hort. Cliff. 379.*—*Swartz, Obs. 292.*—*Bubroma guazuma, Willd. III. 1423.*—*Guazuma ulmifolia, Pers. Enchir. II. 238.*

HAB. Common.

FL. After the Spring and Autumnal rains.

A tree, seldom exceeding 15-20 feet in height: branches spreading, at their extremities terete, stellato-tomentose. Leaves oblongo-ovate, acuminate, cordate and unequilateral at the base, unequally serrated, 3-5-ply-nerved at the base, puberulous with minute stellated hairs above, tomentose especially along the mid-rib with stellated hairs beneath: petiole terete, stellato-

tomentose. Stipules subulato-lanceolate, appressed to the branch. Raceme axillary, not much longer than the petiole, subsolitary, subdivided: peduncle very short, compressed, stellato-tomentulose: pedicels about  $\frac{1}{4}$ th of an inch in length, filiform, 1-flowered. Flowers several, clustered together, small, yellow. Sepals 5, reflected, lanceolate, bluntish, externally stellato-tomentulose, connected so as to form a 2-3-partite calyx. Petals 5, oblong, concave, veined, puberulous, inflexed at the apex as a hood over the stamens and pistil, and terminating in a bipartite tape-like red twisted filament. Stamens monadelphous at the base, forming a short tube, terminating in 5 sterile lobes, which are lanceolate, acute, erect, alternating with 5 fertile filaments which are 3-fid and 3-antherous at the apex: anthers roundish, 2-celled, yellow. Ovary single, globose, puberulous: style 1: stigma simple. Capsule globose, size of a walnut, tuberculated, cribriform. Seeds ovate, unequal.

This is a very common tree in Jamaica, to be found in every climate, and thriving in the wet, as well as the most hot and parched districts. Their growth is encouraged in pastures, as they not only afford an excellent shade, but cattle feed and thrive on the foliage and fruit. The capsules, coarsely bruised, are given to horses as a substitute for corn. Their nutritive property must be owing to the *Mucus*, which all parts of the tree, especially the inner bark and capsules, contain, and which is given out abundantly on infusion or decoction in water. An infusion of the bark was very generally employed, some time ago, as a substitute for gelatin or albumen, in clarifying the cane-juice in the manufacture of sugar. The grain however was found to be soft, and liable to deliquesce. A similar infusion has also been employed medicinally, and given internally as a remedy for *coco-bay*, *elephantiasis*, and other obstinate cutaneous diseases. An old woman, of French extraction, has of late obtained a great reputation among the lower classes by giving this infusion in different complaints, such as *Anemia Africanorum* (*Mal d'estomac*, or dirt-eating), chronic bronchitis, urinary complaints, &c. Her character, however, like that of many other quacks, has rather declined, by her attempting impossibilities, and promising a cure where the disease was incurable.

As a timber, it splits readily, and is employed for the staves of sugar hogsheads. The wood is light, and adapted for various purposes where that quality is desired.

This is called *Bois d'orme*, or *Orme d'Amerique* by the French Colonists, from the resemblance of the leaves to those of the elm of Europe. The English name is very inappropriate.

#### IV. AYENIA.

Calx 5-partite. Petals with a long claw, arched, broader above, covered with pedicelled glandules.



Stamineal urceole 10–15-toothed, with 5–10 of the teeth obtuse and sterile, and the 5 remaining ones alternate and monantherous. Style 1: stigma 5-sided. Carpels 5, bi-valved, 1-seeded, connivent into a subglobose echinated fruit: albumen none: cotyledons leafy, convoluted.

*Named*, in honour of a Duke d'Ayen, a patron of Botany.

1. \* *Ayenia pusilla*. *Weak Ayenia*.

Leaves ovate somewhat glabrous sharply serrated, stems prostrate.

*Urticæ folio anomala, flore pentaphyllo purpureo, fructu pentacocco muricato, Sloane, I. 209. t. 132. f. 2.*

HAB. Town-Savannah.—*Sloane*.

FL. — ?

Branching from the root, about 6 inches in length. Flowers small, purple, axillary, solitary, shortly pedicelled, pendulous. *Sloane* states that he found this plant growing among the grass in the town of Savannah.

2. \* *Ayenia lævigata*. *Smooth Ayenia*.

Leaves ovate very glabrous entire, urceole exserted with ten teeth besides the stamens.

*Swartz, Fl. Ind. Occ. 1131.*

HAB. Thickets: rare.—*Swartz*.

FL. — ?

Flowers axillary, solitary, crimson: pedicels longer than the petiole.

## V. MELOCHIA.

Calyx 5-fid, naked or with 1–3 bracteas. Petals 5, patent. Stamens 5, monadelphous at the base. Styles 5. Capsule 5-celled, 5-valved, with the valves septiciferous: seeds 1–2 in each cell.

*Name*, derived from the Arabic.

1. *Melochia tomentosa*. *Downy Melochia*.

Leaves ovato-oblong crenated plicato-lineated on both sides hoary-tomentose as also the branchlets, umbels 3–8 flowered axillary or subterminal.

*Abutilon arboreum spicatum betonicæ folio incano, flore*



minore purpureo. *Sloane*, l. t. 138. f. 2. 3.—*Melochia frutescens*, *Browne*, 276.—*M. tomentosa*, *Swartz*, *Obs.* 256.—*H. B. et Kunth*, V. 323 ?

HAB. Dry situations.

FL. After rains, about Autumn.

A shrub about 5 feet in height: branches terete, slender, of a ferruginous colour, at their extremities tomentose. Leaves alternate, shortly petiolated, ovato-oblong (or ovato-lanceolate), rounded and subcordate at the base, obtuse, crenato-serrated, hoary-tomentose with stellated hairs especially beneath. Stipules setaceo-subulate. Peduncle axillary shorter than the petiole, or subterminal, solitary, bearing about 4 shortly pedicelled showy purple flowers in umbel. Calyx 5-partite; divisions linear, acute. Petals 5. Filaments cohering for more than half their length: anthers oblong, didymous, yellow. Styles 5. Capsule angular.

It is probable that our Jamaica plant may be different from that of the continent, as the specific character of De Candolle does not apply in every respect to that before us. When in flower, it is a very beautiful shrub, and deserving of a place in our gardens.

## 2. \* *Melochia pyramidata*. *Pyramidal-capsuled Melochia*.

Leaves ovato-lanceolate toothed glabrous, peduncles 5-6-flowered longer than the petiole, branches and petioles puberulous, pubescence generally arranged in lines decurrent from the leaves.

*Abutilon herbaceum procumbens betonicæ folio*, *Sloane*, I. 220. t. 139. f. 1.—*Melochia herbacea tenuissimia ramosa*, *Browne*, 276.—*M. pyramidata*, *Swartz*, *Obs.* 255.

HAB. Road from Spanish-Town to St John's.—*Sloane*.

FL. —?

Suffrutescent, about 2 feet long. Flowers purple. Capsule pyramidal, 5-sided, with the angles mucronate: cells 1-seeded.

## VI. RIEDLEIA.

Calyx 5-fid, naked or calyculated with 1-3 bracteas. Petals 5, patent. Stamens 5, monadelphous at the base. Styles 5. Carpels 5 subconcrete into a 5-celled 5-valved subglobose capsule, at last distinct, opening by a longitudinal slit, cocciform, 1-2-seeded, with the central axis free.—*De Cand.*

Flowers yellow or white.

1. *Riedleia inflata*. *Hop-fruited Riedleia*.

Leaves ovate acuminate obsoletely cordate duplicato-serrated villous above hoary and stellato-pilose along the nerves beneath, peduncle axillary 3-4-fid many-flowered shorter than the petiole.

*Melochia lupulina*, Swartz, *Fl. Ind. Occ.* II. 1141.—*Mongeotia inflata*, *H. B. et Kunth*. V. 330. t. 484.

HAB. Moist thickets.

FL. January.

Suffrutescent, about 3 feet high, terete, piloso-subtomentose towards the end of the branches. Leaves alternate, petiolate, about 4 inches long and 3 broad, ovate, acuminate, cordate, duplicato-serrated, pubescent above, hoary and stellato-pubescent along the nerves and veins beneath. Peduncles axillary, 3-4 together, shorter than the petiole, bearing several white pedicelled flowers in an umbellule. Calyx 5-sided, 5-partite, pubescent, slightly inflated, persistent. Petals oval, shortly clawed, white with a yellow spot in the centre. Filaments united at the base, shorter than the petals: anthers didymous. Styles 5, subulate, twice the length of the filaments. Carpels 5, one-seeded, situated within the enlarged inflated withered calyx.

2. *Riedleia nodiflora*. *Purple-stemmed Riedleia*.

Leaves ovate acuminate serrated subglabrous (when young minutely appressed puberulous especially beneath,) flowers axillary crowded sessile.

*Abutilon fruticosum*, floribus albis ad alas foliorum conglobatis, *Sloane*, I. 219. t. 135. f. 2.—*Melochia nodiflora*, Swartz, *Fl. Ind. Occ.* II. 1139.—*Mongeotia nodiflora*, *H. B. et Kunth*, *nov. gen. Am.* V. 330.—*Riedleia nodiflora*, *De Cand.* I. 491.

HAB. Common in fences.

FL. After rains, throughout the year.

A shrub, 2-3 feet in height, erect: branches alternate, sub-distichal and gradually shorter towards the end of the stem, subdivided, terete, purpurascens, minutely puberulous towards their extremities. Leaves alternate, petiolate, ovate, rounded at the base, acuminate, serrated, penni-nerved, rugulose, minutely appresso-puberulous especially along the nerves beneath: petiole  $\frac{1}{2}$  an inch in length. Stipules lanceolate, marescent, puberulous, deciduous. Flowers axillary, crowded, subsessile, small, reddish-white: pedicels about a line in length, furnished with lanceolate marescent bractees at the base. Calyx 5-fid, divisions minutely ciliated, veined, persistent. Petals 5, oblong. Filaments monadelphous: anthers 5, bilocular. Styles 5. Carpels 5, externally puberulous, united

to form a subglobose 5-angular 5-celled capsule; finally distinct. Seeds solitary.

### 3. *Riedleia virgultosa*. *Twiggy Riedleia*.

Leaves ovato-lanceolate serrated appresso-villous, raceme terminal, interrupted, leafless, stem hairy.

R. *Jamaicensis*, *Bertero*, *apud De Cand. Prod. I.* 492.(?) *Melochia venosa*,(?) *Swartz, Fl. Ind. Occ.* 1137.—*Riedleia venosa*,(?) *De Cand. Prod. I.* 492.

HAB. Road from Norbrook to Dolly-Mohun's Gap, and near Maryland cooper shop, St Andrew's.

FL. After the May and October rains.

Frutescent: stem about 2 feet in height: branches few, sub-simple, virgultose, terete, hairy, subtomentose, coloured. Leaves alternate, with short leafy branchlets in their axils, petiolate, elongato-ovate, rounded at the base, acute at the apex, serrated, penni-nerved, rugulose, pubescent along the nerves above, villous beneath with the hairs rufescent, and appressed; petiole terete, villous. Stipules setaceo-subulate. Inflorescence terminal, interruptedly racemed; flowers yellow, in clusters, shortly pedicelled. Common peduncle leafless, elongated, slightly compressed, villous: pedicels about 2 lines in length, villous, furnished at the base with a subulate ciliated bractea. Calyx externally villous; segments lineari-subulate, acute. Petals 5, about twice the length of the calyx, obovato-oblong, entire, shortly clawed. Stamens 5; filaments monadelphous; anthers 2-celled. Ovary ovate, white, sericeo-villous. Styles 5, erect: stigmata puberulous. Carpels 5, united into a subglobose 5-lobed 5-celled capsule, afterwards distinct, externally velutino-villous, apiculated, 1-seeded. Seeds solitary, 3-gonal, externally to the glass puberulous, black.

I have no doubt but that this is the R. *JAMAICENSIS* of Bertero, and R. *VENOSA* of Swartz. I have changed the specific designation to *VIRGULTOSA*, as being more appropriate. The flowers are rather showy. It does not appear to be a very common plant.

### 4. *Riedleia serrata*. *Serrated Riedleia*.

Leaves ovate sub-cordate irregularly serrated ferrugineo-subtomentoso-hirsute, stipules lanceolato-linear generally the length of the petiole, flowers in clusters of 3-5 subsessile arranged along a terminal interrupted spike.

*Vent! choix. t.* 37.—*De Cand. Prod. I.* 492.

HAB. Savannahs, St Thomas in the Vale.

FL. October—December.

About 2 feet in height: branches round, tomentoso-hirsute. Leaves several together, shortly petiolated,  $1\frac{1}{2}$  inch long, ovate, scarcely cordate, irregularly serrated, nerved, ferrugineo-hirsute-tomentose: petiole  $\frac{1}{3}$  of an inch in length. Flowers light purple, collected in clusters of about 6, sessile, arranged to form a terminal interrupted spike. Outer calyx of 3 linear green hirsute leaflets, partially united together at the base. Calyx 5-cleft, hirsute; divisions acute. (Both the involucellum and calyx have, intermixed with the longer hairs, short ones bearing a capitate ruby-coloured glandule). Stamens united into a tube: anthers white. Styles 5, filiform, longer than the stamens; stigmata white, papillose. Capsule subglobose, 5-celled, with the remains of the styles forming a central apicula.

## VII. WALTHERIA.

Calyx 5-fid furnished with a lateral 3-leaved deciduous involucellum. Petals 5. Style 1. Stigma pencilled. Capsule 1-celled, 2-valved, 1-seeded.

According to De Candolle, the carpels are originally 5 in number, but are reduced to 1 by abortion. *Named*, in memory of Augustin Frider. Walther, Professor of medicine at Leipsig, author of a Botanical work, entitled *Hortus Proprius*, 1735.

### 1. *Waltheria Americana*. *Shrubby Waltheria*.

Leaves ovate or oval plicate unequally dentate tomentose, capitules stalked.

*Malva Americana* abutili folio, flore luteo spicato, foliis hirsutioribus, *Sloane*, II. 218.—*Waltheria fruticosa* subhirsuta, *Browne*, 276.—*Waltheria arborescens*, *Cav. diss.* VI. 170. f. 1.—*W. Indica*, *Jacq. Ic. Rar.* I. 130.—*W. Americana*, *Swartz, Obs.* 254.—*De Cand. Prod.* I. 492.

HAB. Common in dry grass-pieces.

FL. Towards the end of the year.

Shrubby: branches sub-erect, terete, not unfrequently of a reddish colour, hirsute with stellated hairs. Leaves alternate, ovate, or the larger ones oval and subcordate, plicate, unequally subserrato-dentate, nerved, tomentose on both sides: petiole terete, tomentose. Stipules setaceous, ciliated, deciduous. Peduncles axillary, solitary, very short or more or less elongated so as to exceed the leaf in length, bearing a crowded head of small yellow flowers. Leaves of the involucellum lineari-lanceolate, ciliated, marescent. Calyx persistent, externally tomentose; segments acute. Petals spreading, rounded at the apex, wedge-shaped at the base. Column of stamens

half the length of the petals. Style multifido-pencilled. Capsule 1-celled, 1-seeded.

This plant is very common in Guinea-grass pastures, and is usually to be found in the bundles of grass sent to Kingston. The heads of flowers, in such situations, are usually sessile. In the mountains of St David's and Port-Royal the peduncles are elongated.

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## ORDER XXVII. TILIACEÆ.

Calyx of 4-5 sepals; æstivation valvular. Petals of the same number as the sepals, alternating with them, usually with a little pit at the base. Stamens generally indefinite, hypogynous; anthers 2-celled, opening with a double longitudinal slit. Disk formed of glandules equal in number to the petals, and opposite to them, adhering to the stalk of the ovary. Ovary single composed of 4-10 carpels; style 1; stigmata as many as the carpels. Fruit dry, multilocular. Seeds several in each cell: albumen fleshy; embryo straight; cotyledons plane, fleshy.

Trees or shrubs, with *leaves* simple, stipulate, toothed, alternate, and with *flowers* axillary. Natives principally of the Tropics. They all possess a mucilaginous juice. The berries of some are edible; and the bark of all are remarkable for the toughness of their fibres, and that of one species is used in Brazil for tanning.

### I. CORCHORUS.

Sepals 5 deciduous. Petals 5. Stamens  $\infty$ . Style scarcely any. Stigmata 2-5. Capsule 2-5 valved, 2-5 celled, with the valves septiferous down the middle. Seeds in two rows.

*Name*, from κορχορος, the Greek name of a culinary vegetable, supposed to be the *C. OLITORIUS*.—The *C. JAPONICUS* has been introduced, and is common in our gardens in the mountains.

1. *Corchorus siliquosus*. *Long-podded Broom-weed*.  
Capsules linear compressed glabrous 2-celled 2-val-



ved, leaves ovate or lanceolato-ovate equally serrated, stem much branched bifario-pilose.

*Corchoro affinis chamædryos folio, flore flamineo, seminibus atris quadrangularis duplici serie dispositis, Sloane, I. 145. t. 94. f. 1.*—*Coreta foliis minoribus, Browne, 147.*—*Corchorus siliquosus, Swartz, Obs. 219.*

HAB. Common; roadsides.

FL. After rains.

Suffruticose, erect, 1–2 feet in height: branches spreading, subterete, minutely bifario-pilose. Leaves small, ovate or lanceolato-ovate, acuminate with the apex sharp, serrated, 3-nerved at the base, glabrous: petiole compressed, with a line of pubescence above. Stipules minute, setaceo-subulate. Peduncle opposite to a leaf, solitary, very short, bearing 1–2 shortly pedicelled flowers: pedicels longer than the peduncle, furnished at the insertion with minute setaceo-subulate bracteas. Sepals 5, linear, subulate. Petals 5, clawed, oblong. Stamens very numerous: filaments capillary: anthers roundish, yellow. Ovary oblong, green, glabrous: style protruding beyond the stamens, thick: stigma penicilliform. Capsule nearly 2 inches in length, compressed, with a line of minute hispid hairs along the sutures on each side, 4-toothed at the apex with the teeth blunt and spreading: seeds numerous, small, cubical, angular, black.

According to Linnæus, the vernal flowers are tetrandrous, 4-sepalled, and 4-petalled.

## 2. *Corchorus campestris.* *Savannah Broom-weed.*

Capsule linear acute 3-gonal puberulous, 3-celled 3-valved, leaves ovate serrate with the lower serratures setaceo-apiculated, branches with a single line of pubescence.

HAB. Liguanea: roadsides and pastures.

FL. After the May and Autumnal rains.

Suffruticose, erect, about a foot in height: branches few, alternate, terete, with a line of hairs on one side. Flowers yellow. Seeds numerous small.

This species has a considerable resemblance in appearance to the preceding.

## 3. \* *Corchorus æstuans.* *Horn-beam-leaved Corchorus.*

Capsules oblong 3-valved 6-sulcated, leaves subcor-date ovato-acuminate serrated, lowest serratures terminating in a long bristle.—*De Cand.*

*Triumfetta subvillosa, foliis rotundioribus undulatis atque*

dentatis, postremas in setas inermes, *Browne*, 232. t. 25. f. 1.  
—*Corchorus æstuans*, *Jacq. hort.* t. 85.—*Willd. Sp.* III. 1216.

HAB. —?

FL. —?

*Browne* states, that he found this species in our Island; but that it is not a common plant. The stem is described as slightly scabrous, purpurascens; branches divaricating: leaves cordato-ovate, serrated, with the lowest serratures setaceous: styles 3, bifid: capsule, according to *Willdenow*, "linear, 6-angled, (the angles approximating in pairs); and the terminal teeth very much diverging."

#### 4. *Corchorus olitorius*. *Jew's Mallow*.

Capsules oblong subterete glabrous 5-celled 5-valved, leaves ovato-oblong serrated with the two lowest serratures terminating in long bristles.—*De Cand.*

*Willd. Sp.* III. 1214.—*De Cand. Prod.* I. 504.—*Bot. Mag.* 2810.

HAB. Cultivated.

FL. After rain.

An annual species: stem erect, glabrous. Leaves 2–3 inches long, varying from oblong to ovate, acute or even acuminate, thin: petiole often as long as the leaf. Flowers yellow, solitary, shortly peduncled, opposite the leaves: peduncles furnished about the middle with three subulate bracteas. Calycine sepals spreading. Petals obovato-oblong. Capsules varying from 1 to 3 inches in length, acuminate: seeds ovate, brown.

This plant may be frequently met with in our gardens; although it has in a great measure ceased to be cultivated as a pot-herb. The leaves boiled, afford a very excellent and wholesome substitute for *spinach*.

#### 5. *Corchorus lanuginosus*. *Woolly Broom-weed*.

Capsules oblongo-conical curved setoso-echinated with soft woolly hairs, leaves ovato-oblong obtuse tomentose undulato-crenato-serrate.

HAB. Common on the windward road, between Albion and the Eleven Mile-stone. Below Moccha Great House, St David's.

FL. End of the year.

A shrub, 4–5 feet in height: branches terete, farinoso-tomentose with stellated hairs, rufescent. Leaves ovato-oblong, obtuse, rounded at the base, a few (the lowest and largest) subcordate, undulato-serrated with blunt teeth, penni-nerved, tomentulose above, and incano-tomentose beneath with minute stellated hairs, about 2 inches long and 1 broad: petiole rufes-

venti-tomentose. Stipules short, setaceo-subulate, deciduous. Peduncle opposite to a leaf, shorter than the petiole, bearing about 8 pedicelled bright yellow flowers in a kind of umbel. Bracteoles setaceous, small, at the base of the pedicels. Calycine sepals oblongo-lanceolate, externally farinoso-tomentose with stellated hairs. Petals oblong, concave, undulato-crisped at the apex. Stamens numerous, slightly cohering at the base: anthers 2-lobed, versatile. Ovary oblong, compressed, incano-villous; style longer than the stamens; stigma obtuse. Capsule oblongo-conical, curved so as to resemble the form of the *Cornu-copia*, lanuginose, 4-valved, 4-celled, the valves septiferous down their middle: the hairs which cover the capsule setaceous, (to the glass) covered with minute stellated hairs. Seeds uniserial? about 5 in each locule, compressed.

This species may be referred to the fifth section of the genus according to the arrangement of De Candolle. It is a handsome shrub, and it is remarkable that it has not sooner been noticed as one of our native plants.

The fibres of the inner bark are very strong, and might be employed as a substitute for hemp, as is done in India with that of the *Corchorus capsularis* in making fishing lines and nets.

## II. TRIUMFETTA. *Bur-weed.*

Calycine sepals 5, obtuse, or frequently apiculated below the apex. Stamens 10-30, free, or slightly united at the base. Ovary subrotund: style 1. Carpels 4, united into a capsule, echinated with bristles hooked at the apex: seeds 1-2 in each carpel; embryo inverted.—*De Cand.*

*Named*, by Plumier in memory of Giav. Battista Triumfetti, Prefect of the Botanic Garden at Rome, Author of the *Hortus Romanus*, and other works.

### 1. *Triumfetta Lappula.* *Common Bur-weed.*

Flowers apetalous, leaves cordate subrotund unequally dentate subvillous sub-3-5-lobate with the lobes acuminate.

*Agrimonia Lappacea inodora*, folio subrotundo dentato, *Sloane*, I. 211.—*Triumfetta Lappula*, *Jacq. Amer.* 146.

HAB. Common weed in waste places.

FL. Greater part of the year.

Suffruticose, erect, 4-5 feet in length: branches spreading, slightly compressed, strigoso-villous with stellated hairs. Leaves subrotund, subcordate, imperfectly 3-5-lobed, with the

lobes acuminate, 3-5-nerved, unequally dentate with a few of the teeth near the petiole glandular and cupshaped, velvety above, and incano-villous with stellated hairs beneath. Petiole 2-2½ inches long, terete, villous. Raceme axillary and terminal, compound; divisions 3-4 proceeding from the same point, each bearing shortly pedicelled dirty-yellow rather small flowers. Bracteas small lanceolate, at the divisions of the raceme, and at the base of the pedicels. Calycine sepals 5, lineari-oblong, apiculated below the blunt apex, externally puberulous. Petals 0. Stamens 10, yellow, length of the calyx, spreading. Ovary hispid with hooked hairs: style longer than the stamens: stigma bifid. Capsule not separating into carpels: seed solitary.

The young shoots or leaves of this, as well as of the two following species, infused in cold water, are rendered glary and mucilaginous. A leaf applied to each cheek, for a few minutes, produces a colour which might rival that of rouge. The bark is strong, and has been employed in making cordage. From the tenacity with which the capsules hook themselves on the clothes of travellers, the French Colonists give the plant the name of "*Les Cousins*."

## 2. *Triumfetta semitriloba*. *Mallow-leaved Bur-weed*.

Leaves ovate 3-lobed callososerrated velvety on both sides, calycine sepals pubescent subapiculated, capsules globose echinated with bristles hispid with reverted hairs.

*Triumfetta villosa*, floribus ternatis, *Browne*, 233.—*T. semitriloba*, *Jacq. Amer.* 147.

HAB. Common, with the last.

FL. Throughout the year.

Suffruticose, erect, sometimes 6-7 feet in height, strigoso-villous with stellated hairs. Leaves ovate, 3-lobed with the middle lobe the longest, acute, 3-nerved, serrated, stellato-hirsute above, stellato-velutine beneath: petiole about 2 inches long. Raceme axillary terminal, compound: divisions in threes, each of 3 shortly pedicelled flowers, with 3-5 lanceolate bracteas. Calycine sepals 5, oblong, apiculated, puberulous, striated, fulvous. Petals 5, oblong, yellow, erect. Filaments 16, longer than the petals, minutely papillose: anthers heart-shaped, yellow, with a crimson spot in the centre. Carpels, when ripe, separable.

The lower leaves are sometimes 5-lobed, and the upper ones undivided.

3. *Triumfetta rhomboïdea*. *Rhomb-leaved Bur-weed*.

Leaves rhomboidal lower ones sub-5-lobed, middle ones sub-3-lobed, the upper ones oblong, all of them callososerrate stellato-velutine on both sides and somewhat wedge-shaped at the base, flowers axillary, capsules echinate subpilose 6-celled.

Jacq. Amer. 147. t. 90.—Lindl. coll. t. 29.—De Cand. Prod. I. 507.—T. rhombeæfolia, Swartz, Fl. Ind. Occ. 863.

HAB. Common.

FL. Throughout the year.

A shrub, erect, 3–4 feet in height: branches subdichotomous, strigose, purpurascens. The upper leaves shortly petiolate, or subsessile, ovate or ovato-lanceolate; the lower ones on long petioles, broad, rhomboidal, obscurely 3–5-lobed; in both, entire at the base, callososerrate, rugose, stellato-pubescent: petiole of the same length as the leaf. Peduncles axillary, 3 together, 3-fid, very short, unequal: flowers very numerous, aggregatocracemose, on short pedicels. Calycine sepals with a conical apicula below the apex, linear, pubescent, coloured, reflected. Petals 5, oblong, with a short hairy claw, patulous, rather shorter than the sepals. Filaments 15, length of the sepals, papillose, erect, yellow: anthers 2-celled, transversely dehiscent. Ovary hispid with herbaceous hooked hairs; style erect, length of the stamens: stigma 3-cuspidate. Capsule globose, 6-celled: seeds solitary, angulate.

I have uniformly found the stigma 3-cuspidate, and the capsule 6-celled. According to Swartz and Jacquin the stigma is simple and acute, and according to the first mentioned author the capsule is usually 3-, but also sometimes 4–5 or 6-celled.

### III. MUNTINGIA.

Calyx 5–7 partite, deciduous. Petals 5–7. Stamens  $\infty$ , free. Ovary sessile globose surrounded at the base with a circle of hairs. Style 0. Stigma capitate-radiate persistent. Berry 5-celled,  $\infty$ -seeded. Seeds minute nidulant in a pulp. Embryo small.—*De Cand.*

Named after Abraham Munting, Professor of Botany at Groningen.

1. *Muntingia calabura*. *Jamaica Muntingia*.

Loti arboris folio angustiore, rubi flore, fructu polyspermo



umbilicato, *Sloane*, II. 80. t. 194.—*Muntingia fruticosa villosa*, foliis serratis oblongis uno latere brevioribus, *Browne*, 245.—*M. calabura*, *Gærtn.* I. t. 59. *Jacq. Am.* t. 107. *Swartz, Obs.* 211.

HAB. Common on the low dry hills.

FL. Throughout the year.

A tree about 15 feet in height: branches horizontally spreading, villosa-tomentose with viscoso-capitate hairs at their extremities. Leaves alternate, shortly petiolated, oblongo-lanceolate, acuminate, unequal and sub-cordate at the base, nerved, deep green and pubescent above, rufescenti-tomentose with viscid hairs beneath. Stipules twice the length of the petiole, setaceous. Peduncles supra-axillary, 2-3 together, 1-2 inches long, terete, viscoso-villous, one-flowered. Flowers white. Bractees 3-4, at the base of the peduncles, setaceo-subulate. Calyx 5-7 partite nearly to the base; divisions lanceolate, attenuated at the apex, externally villosa-pubescent, internally concave, deciduous. Petals of the same number as the calycine lobes, spreading, slightly clawed at the base, roundish, undulated at the margin. Filaments numerous, erect: anthers yellow, didymous. Ovary globose, lobulated, encircled at the base with a hairy ring: stigma sessile. Berry, size of a gooseberry, green.

#### IV. BANCROFTIA.

Calycine sepals 8, persistent. Petals 8. Stamens 8, hypogynous. Style short: stigma radiato-6-fid. Berry 6-celled,  $\infty$ -seeded: seeds minute, nidulant in the pulp.

*Named*, in honour of Dr Edward Nathaniel Bancroft of Jamaica, a zealous cultivator of Botany, as well as the other branches of Natural History, and author of several esteemed works on medical subjects.

##### 1. *Bancroftia diffusa. Spreading Bancroftia.*

HAB. Morce's Gap, and road to New-Haven, St George's.  
FL. October.

Stem herbaceous, suffruticose at the base, several feet in length, supporting itself on neighbouring shrubs: branches long, terete, glabrous. Leaves alternate, petiolate, ternate, with the middle leaf the longest; leaflets lanceolate, acuminate, subentire, nerved, glabrous: common petiole about 2 inches in length, terete, glabrous: petiolules of the leaflets short. Racemes terminal, simple, 6-8 inches in length: flowers shortly pedicelled, greenish-white: common peduncles angulose: pedicels half an inch in length, furnished at the base with a linear bractea of the same length. Sepals 8, narrow, lanceolate, per-

sistent. Petals 8, longer than the sepals, broad-lanceolate. Stamens 8, hypogynous: filaments subulate: anthers small, white. Ovary globose, green: style very short: stigma 6-cleft, spreading, persistent. Berry globular, green, 6-celled, rather larger than a black currant: seeds very numerous, small, roundish, compressed, black, buried in the pulp.

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## ORDER XXX. TERNSTRÆMIACEÆ.

Calycine sepals 5, concave, unequal, coriaceous, imbricated, obtuse, persistent, generally bracteolated. Petals 5, inserted on a hypogynous disk, often combined at the base. Stamens  $\infty$ , hypogynous; filaments short; anthers bilocular. Ovary ovate: styles 2-5. Fruit ovato-globose, with the cells corresponding in number with that of the styles, either a dry berry and indehiscent, or a capsule and dehiscent. Seeds  $\infty$ , attached to a central column: albumen none, or in a very small quantity: embryo straight, bowed, or folded back, with the radicle turned to the hilum: cotyledons oblong.

Trees or shrubs, with alternate exstipulated coriaceous leaves, and flowers peduncled axillary and terminal.

### I. TERNSTRÆMIA.

Calycine sepals 5-6, bibracteolated at the base. Petals 5-6, coalescing at the base. Stamens  $\infty$  in two rows: anthers adnate, oblong, glabrous. Styles united into 1. Berry dry, 2-celled; cells 3-4-seeded.—*De Cand.*

Trees, natives of America: with the peduncles 1-flowered, bracteolated at the base.—*Named*, in honour of Ternstrøm, a Traveller in China. *Lunan.*

#### 1. *Ternstroemia meridionalis.* *West India Ternstroemia.*

Leaves very entire obovate subemarginate, peduncles scarcely longer than the flowers.

*Swartz, Prod. 81.—Obs. 207.*

HAB. Port-Royal mountains; below Trafalgar house.

FL. September.

A tree about 20 feet in height: branches irregular, spreading, subterete, glabrous, slightly verrucose. Leaves situated towards the ends of the branchlets, alternate, petiolate, obovate, attenuated at the base, rounded and sometimes subemarginate at the apex, entire with the margin concave, coriaceous, nerveless, almost veinless, very glabrous, shining above, 2-3 inches long: petiole plane above. Peduncles axillary, solitary, 1-flowered, terete, about an inch in length, drooping. Flowers rather showy, white, fragrant. Calycine sepals 7, persistent; the two outer ones small, ovate; the other five roundish, thick, almost cartilaginous, green, concave, shining. Petals 5, united at the base to form a submonopetalous corolla, spreading, longer than the calyx, subemarginate, deciduous. Stamens numerous, submonadelphous, accrete to the base of the petals, with which they are inserted on the torus, encircling the base of the ovary: filaments  $\frac{1}{2}$  of an inch in length, subulate, free at the apex, and bearing on each side, about the middle, a linear pollenary locule or anther. Ovary conical, 2-celled: ovules cochleate, attached to the septum: style erect, longer than the stamens, thick, subulate: stigmata 2. Berry (?) juiceless, conical, enclosed within the persistent calyx, falling, when ripe, without separating into valves: seeds silky.

## 2. *Ternstroemia crenata*. *Crenated Ternstroemia*.

Leaves ovato-lanceolate acuminate with the apex blunt serrato-crenated nerved, peduncles axillary scarcely longer than the flowers 5-bracteolated.

HAB. Road to Cold-Spring.

FL. March.

A tree, about 20 feet in height: branches spreading, angulose at their extremities, glabrous. Leaves at the ends of the branches, petiolate, ovato-lanceolate, acuminate with the apex blunt, crenulato-serrate, very glabrous and shining above, glabrous or faintly puberulous along the midrib beneath, nerved, and minutely reticulato-venose: petiole subterete, plane above. Peduncles axillary, solitary, usually shorter than the petiole, terete, 1-2-flowered: flowers white, fragrant. Bracteoles 5, small, scale-like, rounded, imbricated, appressed to the base of the calyx, ciliated, and pectinulated with a row of minute glandules mixed with the hairs. Calycine sepals 5, twice the size of the bracteoles, roundish, ciliated and pectinulated with minute glandules, imbricated. Petals 7-9, (two or more of them as if supplementary, being situated more interiorly and somewhat smaller), oblong, rounded at the apex, cohering together and with the base of the stamens. Stamens  $\infty$ , in 3

rows (the innermost being the shortest), monadelphous: filaments subulate: anthers minute, oval. Ovary conical, yellow, silky-pubescent: style erect, length of the stamens, puberulous: stigma green, subcapitate, crenato-corrugated.

I have no hesitation in referring this to the above genus; although it differs in several particulars from the preceding species. The peduncle varies in length.

## II. FREZIERA.

Calyceine sepals 5, bibracteolated. Petals 5, broad at the base, free. Anthers adnate, glabrous, subcoradate. Style 3-5-fid at the apex. Berry 3-5-locular.

Trees, natives of America, of the habit of the Laurel kind, with axillary peduncles.

### 1. *Freziera thæoides*. *Tea-like Freziera*.

Leaves elliptic acuminate at both ends serrulato-dentate glabrous, pedicels axillary sub-solitary 1-flowered.

*Eroteum thæoides*, Swartz, *Prodr.* 85.—*F. thæoides*, Swartz, *Fl. Ind. Occ.* 972.

HAB. The higher mountains.

FL. January—July.

A tree, seldom more than 20 feet in height: branches terete, glabrous, subflexuose. Leaves alternate, petiolate, 2-3 inches in length, elliptic, acuminate at both ends with the apex blunt, obtusely serrated with the serratures apiculated, stiff, obscurely nerved and veined: petiole short. Peduncles axillary, solitary (but apparently 2-3, from 2-3 leaves being crowded together, and 1-2 of them having dropt off), 1-flowered: flowers nodding, of a greenish-yellow colour. Sepals somewhat unequal, roundish, concave, minutely ciliated, coriaceous, persistent: bracteoles 2, at the base of the calyx, linear, much smaller than the sepals. Petals larger than the sepals, roundish, concave, minutely ciliated. Filaments numerous, unequal in length, capillary, 6-10 attached to the base of each petal: anthers small, acute or beaked at the apex. Ovary roundish-conical: style 3-4-fid at the apex: stigmata simple. Berry size of a small cherry, globose, purple, juicy, 3-4-celled: seeds many, angulated.

This is by no means a very showy tree. The leaves are asstringent, and in taste resemble those of the *Thea viridis*.

### 2. *Freziera* (?) *dioica*. *Diœcious Freziera*.

Diœcious, leaves oblong emarginate distantly cre-

nato-serrated, pedicels axillary solitary bearing about 8 flowers in a head.

HAB. Tweedside road, opposite Sheldon Works, Port-Royal.  
FL. May.

A tree, about 20 feet in height: branches subterete, ash-coloured, glabrous. Leaves crowded at the ends of the branches, petiolate, oblong, acute at the base, rounded and emarginate at the apex, distantly serrato-crenated, coriaceous, nerved and veined, very glabrous, about 4 inches long and 2 broad: petiole short, terete, slightly grooved above. Peduncles axillary, solitary, not so long as the petiole, compressed, bearing about eight small greenish shortly pedicelled flowers in a head. Calycine sepals imbricated: the outer ones 4-5, much smaller than the others, rounded; the inner ones 4-5, oval, obtuse. Petals usually 5, smaller than the inner sepals and alternating with them, inserted on a hypogynous disk, oblong, obtuse, horizontally spreading. Stamens 0. Ovary conical: style scarcely any: stigma obtuse, subentire. Berry (drupe?) size of a gooseberry, spherical mono-pyrene, nut 2-celled, with one of the cells abortive: seeds solitary, orbiculate, compressed: embryo lamellated:

I have met with only one tree of this species. A distinguished Botanist, to whom I submitted some rather imperfect specimens, coincided with me in opinion, that it approached in some respects to the genus to which I have for the present referred it.

### III. GORDONIA.

Calycine sepals 5, bibracteolated at the base, coriaceous rounded. Petals 5, subadnate with the urceole of the stamens. Style 1. Stigmata 5. Capsule 5-celled, 5-valved, with the cells 2-seeded. Seeds expanded at one end into a leafy wing.

*Name*, in honour of James Gordon, a correspondent of Linnaeus, and a Nurseryman in the neighbourhood of London.

#### 1. *Gordonia hæmatoxylon*. *Blood-wood*.

Peduncles thick very short, leaves petiolate ovato-lanceolate acuminate serrate, petals distinct, styles 5 distinct, fruit oblongo-ovate subpentagonal, cells 2-seeded.

*Swartz, Fl. Ind. Occ.* 1199.

HAB. Mountains, not uncommon.

FL. January—March.



A tree 20–30 feet in height, erect, with spreading branches: branchlets terete towards their extremities, pubescent. Leaves alternate, petiolate,  $2\frac{1}{2}$ –3 inches long, ovato-lanceolate, sometimes ovate, acuminate with the apex blunt, serrated but entire, and with the margin revolute, towards the base, obscurely nerved, glabrous and shining above, minutely appresso-puberulous, and when young pubescent along the mid-nerve beneath: petiole short, plane above, when young pubescent. Flowers large, showy, white. Peduncles axillary, solitary, very short, thick, terete, pubescent, 1-flowered. Calyx furnished externally with 2 roundish concave early-deciduous bracteoles: sepals 5; the outermost one the smallest, and like the bracteoles deciduous; the innermost one petaloid; all of them roundish, concave, externally greenish and sericeo-pubescent, ciliated, imbricated. Petals 5, obcordate, longer than the sepals. Stamens numerous, hypogynous: filaments subulate, slightly monadelphous, inserted with the petals on the receptacle: anthers minute, reniform, oscillatory. Ovary ovate, incano-pubescent: styles 5, very short, diverging horizontally: stigmata obtuse, green. Capsule oblongo-ovate, 5-sided: cells 2-seeded.

This is said to be a valuable timber tree. The wood is of a blood-red colour, and from its great hardness, has, in common with a number of other trees, received the name of the *Iron-wood*. The leaves, previous to being shed, acquire a red colour. When in flower it forms a conspicuous ornament of the forest, especially in some of the mountain districts of St George's; the snow-white of the blossoms contrasting with the deep green of the leaves.

## 2. *Gordonia villosa*. *Villous Gordonia*.

Peduncles thick short villous, leaves subsessile oblongo-obovate obtuse serrated villous, petals distinct, styles 5 distinct, fruit oblong, cells 5-seeded.

HAB. Morse's Gap.

FL. October—December.

An erect shrub, 5–8 feet in height: branches erect, terete, towards their extremities villous. Leaves alternate, subsessile, somewhat obovate, obtuse, serrated coriaceous, glabrous and shining above, villous beneath, almost nerveless. Flowers large, white, showy, axillary, solitary, shortly peduncled. Peduncles  $\frac{1}{4}$ th of an inch in length, terete, villous. Bracteoles 2, roundish, concave, externally villous, early-deciduous. Calycine sepals 5, imbricated, the innermost the largest, roundish, concave, externally villous, ciliated. Petals 5, obovate, externally sericeo-villous. Stamens numerous; filaments subulate, villous and slightly monadelphous at the base. Ovary superior, of five slightly connected carpels, sericeo-villous: styles 5, short:

stigmata green, bi-lobed. Capsule oblong, an inch in length, 5-valved with the valves, as in the preceding species, septiferous: cells 5-seeded: seeds compressed, furnished with a delicate oblong wing.

## ORDER XXXI. CAMELLIÆ.

Calycine sepals 5-7, during æstivation imbricated, the inner generally larger, subconcave, coriaceous, deciduous. Petals 5-6-9. Stamens  $\infty$ , at the base, polyadelphous or monadelphous. Ovary 1. Styles 3-6, more or less united. Capsule 3-celled, opening with 3 valves, by abortion 3-seeded. Seeds few, large, attached to the axis. Embryo straight, the radicle turned to the hilum. Cotyledons thick, large, filled with oil.—*De Cand.*

This Order has, with great propriety, been united by some Botanists with TERNSTROMIACÆ.

### 1. Thea. *Tea.*

Calycine sepals 5-6. Petals 6-9, in two or three series. Stamens somewhat free at the base. Anthers roundish. Capsules 3-coccos, 3-valved; valves in their middle septiferous.—*De Cand.*

*Name*, from TEHA, the Chinese designation of the plant.

### 1. Thea Viridis. *Green Tea.*

Leaves elliptico-lanceolate coriaceo-membranaceous convex undulated, flowers solitary nodding.—*Hooker.*

*Bot. Cab.* t. 227.—*Woodr. Med. Bot. Suppl.* 116. t. 256.—*Booth, Trans. Hort. Soc. Lond.* VII. 558.—*Hooker, Bot. Mag.* 3148.—*De Cand. Prod.* I. 530. *Spreng. Syst. Veg.* II. 603.

HAB. Naturalized at Cold-Spring, St Andrew's mountains. FL. May.

A shrubby tree, 8-10 feet in height, with a smooth bark, very much branched and spreading, resembling the common Guava in its mode of growth. Leaves alternate, shortly petiolated, elliptico-lanceolate, blunt, finely serrated, dark green and shining above, paler beneath, subrugose, nerved,  $3\frac{1}{2}$

inches long, and  $1\frac{1}{4}$  broad. Flowers peduncled, axillary, solitary, drooping, rather large, white, slightly fragrant. Peduncle half an inch in length. Sepals 6, green, roundish, concave. Petals 9 (according to some Botanists, usually 6), roundish, slightly clawed, in 2 or 3 series, of which the outer are smaller and greenish, the inner of a pure white. Stamens unequal in length, fixed on the base of the petals, subcoalescing among themselves at the base. Ovary small, spherical, puberulous, 3-celled, each cell containing two ovules; styles 4, combined below, free above: stigmata obtuse. Capsule size of a chesnut, 3-lobed, 3-celled, 3-valved; valves coriaceous, bearing the septa from their middle. Seeds large, of a chesnut colour, usually (sometimes from abortion only one) attached to a 3-quetrous central column.

De Candolle has been led into a mistake, in considering, that the divisions of the capsule are formed by the involuted margins of the valves.

The *Tea Plant* was introduced into the Garden at Cold-Spring by the late M. Wallen, Esq. The house had for many years fallen into decay, and the garden was neglected and allowed to grow up in weeds. Notwithstanding this, on clearing the land, for the purpose of planting it in Coffee, about two years ago, the Tea trees were found to have survived, and young plants to have grown up. They are now in a very thriving condition, flowering and perfecting their seeds; and a supply of young plants may at any time be procured.

The Tea is a native of the temperate districts of China, and Cochin-China, and as far north as the  $45^{\circ}$  of latitude in Japan. In the neighbourhood of Canton it is seldom met with. There cannot be a doubt but that the cultivation would succeed in our cooler mountains, and it is probable that when the price of labour becomes less, that a supply may be obtained sufficient for our own wants. The Chinese, in the cultivation of the Tea, plant the seeds during the month of February, either along the borders of their fields, or, where it is grown in a large scale, in the open plain. They prefer a southern exposure, in the neighbourhood of a stream or rivulet.

According to Dr Abel, the green Tea of the shops may be obtained from the species before us, as also from the *Thea bohea*. The leaves of the former however are preferred. According to Mr Millet, a gentleman resident at Canton, in a letter to Sir William Hooker, the varieties of Teas depend on the soil, culture, mode of preparation, and above all from the part of the shrub, whence the leaves are pulled. From the same plant, three crops are annually collected; the first affords the finer teas, and takes place in June; the second in July; and the third in August. The strongest description of tea is procured from the buds and unexpanded leaves. According to Dr Abel, the

Chinese give it the name of *Yutien*; it scarcely colours water, and it is only used on occasions of ceremony.

There are two processes described as employed by the Chinese in preparing the Tea for market. According to the first, a few pounds of the leaves are put into a heated pan, and shifted by the hands of the operator as quickly as possible. As soon as the heat becomes too great, they are thrown out, and a few at a time are rolled between the palms of the hands, while assistants are fanning in order to cool them more quickly. This process is repeated several times till the leaves become quite dry. On every repetition the heat of the pan is diminished. The second method describes the leaves as plunged into boiling water for half a minute: after they are partially dry, they are rolled with the fingers, and thrown on heated plates, where they are kept constantly stirred with the hand till the desiccation is completed, and occasionally taken off and rubbed between the fingers in the heated state. The process, according to either method, is rapidly performed, so that, in China, a man usually manufactures 600 lbs. a week, for six months.

According to Kæmpfer, the Japanese employ the flowers of *OLEA FRAGRANS*, *fragrant olive*, now commonly cultivated in our gardens, to give a higher flavour to their Teas.

The infusion of Tea has long been a favourite beverage. Its effects are soothing and exhilarating, and it has a decided effect in facilitating digestion. When taken in excess and in a strong infusion, it produces a state of nervous excitement, attended with accelerated circulation, insomnolency, convulsions, and other bad consequences. It is remarked in China, that persons addicted to its excessive use, are debilitated, of a leaden complexion, with the teeth black, and subject to diabetes.

A strong infusion of green tea is sometimes employed as an injection in leucorrhœa, and as a lotion in mild ophthalmia. The Chinese employ the inferior descriptions of tea in dyeing black; and to revive the colour of Nankin.

The analysis of the leaves gives, extractive, mucilage, a good deal of resin, gallic acid, and tannin. According to experiments made in the Royal Institution of London, green Tea is more astringent than black, and contains more soluble matter. It is a vulgar error to suppose that the former contains copper, as none can be detected on analysis, and the plates on which the leaves are dried, are either of earth or iron.

For a very good account and figure of the Tea plant, the reader is referred to Sir W. Hooker's Botanic Magazine. The only fault in the representation is that the leaves ought to have been of a much deeper green.

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## ORDER XXXII. OLACINEÆ.

Calyx monosepalous, subdentate, at first small, afterwards enlarged or berried. Petals 4–6, hypogynous, subcoriaceous, with a valvular æstivation, either free, or binately united; disk hairy. Stamens 3–10, hypogynous or epipetalous: filaments compresso-subulate: anthers cordato-oblong, erect, 2-celled. Ovary free, 1-celled, 3-ovuled: style 1, filiform. Fruit subdrupaceous, indehiscent, frequently surrounded with the enlarged or berried calyx, by abortion 1-celled, 1-seeded: seed pendulous, umbilicated at the base: albumen fleshy, large; embryo small, included within the albumen, ovoid, basilar; radicle directed to the umbilicus; cotyledons continuous.—*De Cand. abbr.*

Trees or shrubs, glabrous; leaves simple, petiolate, alternate, exstipulated, entire, very rarely none; flowers small, axillary.

1. *Ximenia montana*. *Mountain-Plum*.

Peduncles racemose many-flowered unarmed, leaves oblong emarginate with an awn in the indentation.

X. multiflora, *Jacq. Amer.* 106. t. 177. f. 31.—X. Americana, *De Cand. Prod.* I.

HAB. Not uncommon; Port-Royal Mountains.

FL. August.

A tree with the stem erect; the branches spreading, terete, angulose, verrucose, and glabrous at their extremities. Leaves alternate, or 2–3 together on short lateral tubercle-like branchlets, petiolate, lanceolato-oblong, somewhat acute at the base, the apex in some rounded and mucronate, in others emarginate with an awn, entire, glabrous, nerved, obscurely veined, nearly 3 inches long and scarcely one broad: petiole one-fourth of an inch long, terete, channelled above with the edges of the groove margined. Raceme axillary, subterminal, solitary, simple, about twice the length of the petiole: flowers yellow, green, shortly pedicelled; common peduncle angulose. Calyx minute, 4-fid. Petals 4, linear-oblong, recurved at the apex, internally villous. Stamens 8, hypogynous, length of the petals; filaments delicately capillary: anthers linear. Ovary subulato-conical, glabrous, 8-angulose at the base; style length of the stamens, erect; stigma obtuse. Drupe size of the Plum of Europe,



yellow, smooth, shining, 1-seeded; pulp watery, of a pleasant sweet subacid taste; seed large, white.

The above description agrees pretty closely with that, of *XIMENIA MULTIFLORA*, by Jacquin: I never could detect, however, thorns on any of the trees I met with.—The plum produced by this species is very agreeable to the taste, and not inferior to the common varieties of that of Europe. There is a slight astringency with a pleasant acidity. It is well deserving of notice, and I doubt not, but that it might be rendered by cultivation a very superior fruit.

## 2. \* *Ximenia inermis?* *Unarmed Ximenia.*

Pedicels 1-flowered, leaves ovate.

Amyris 3.—Arborescens, foliis ovatis, glabris, vetustioribus confertis, petiolis submarginatis, floribus solitariis, *Browne*, 209.

HAB. Near Rio Grande, *Browne*.—Manchioneal Bay, *A. Robinson*.

FL. — ?

*Browne* states that this is a shrubby tree; 8–9 feet high; leaves an inch in length, crowded together on the branchlets; perianth 5-cleft. In Mr A. Robinson's plant, as quoted by Mr. Lunan, the flowers are in umbels on a short peduncle; the ovary 4-celled; style quadrangular; and stigma *quadrate*. The plants, in both instances, may prove to be merely varieties of the preceding species.

## II. ICACINA?

Calyx minute, 5-fid, persistent. Petals 5, alternating with the teeth of the calyx, oblong, villous internally especially at the base. Stamens 5, alternating with the petals; anthers cordate. Ovary situated on an annular disk, 1-celled.

*Named*, from a fancied resemblance between the fruit of *I. SENEGALENSIS*, and that of *CHRYSOBALANUS ICACO*.

### 1. *Ikacina dubia.* *Doubtful Ikacina.*

Leaves lanceolate subacuminate with a pustulose blister in the axils of the nerves, flowers paniced axillary.

HAB. Port-Royal and St David's mountains.

FL. May.

A shrub about 6 feet in height: branches loose, subterete, glabrous, papillose, compressed towards their extremities.

Leaves alternate, petiolate, without stipules, lanceolate, subacuminate with the apex blunt, attenuated at the base, very glabrous, nerved, with a pustulose blister in the axil of the under surface of each nerve, about 6 inches long, and 1 broad : petiole plane above. Panicle axillary, solitary, shorter than the leaf : peduncle and its subdivisions compressed, puberulous : flowers greenish-yellow, fragrant, shortly pedicelled. Calyx minute, 5-, rarely 4-toothed, externally puberulous, persistent. Petals 5, rarely 4, alternating with the teeth of the calyx, lineari-oblong, obtuse, externally puberulous, internally marked with 3 longitudinal ridges, and villous especially near the base. Stamens 5, alternating with, and more than half the length of the petals, spreading ; filaments expanded at the base, towards the apex subulato-compressed : anthers cordate, purpurascens. Ovary placed on a minute annular disk, ovate, puberulous, 1-ovuled : style very short : stigma bifid. Fruit subdrupaceous, (from the thinness of the cortical part,) size of a pigeon's egg, ovoid, mono-pyrene : shell chartaceous : seed solitary.

I refer this plant with some confidence to the above genus ; although Adr. Jussieu, by whom it was founded, describes the fruit of the only species hitherto known, as a capsule deliscent at the apex.

### ORDER XXXIII. AURANTIACEÆ.

Calyx urceolate or campanulate, somewhat adhering to the disk, short, 3-5 toothed, marescent. Petals 3-5, broad at the base, free or slightly combined, inserted upon the outside of a hypogynous disk, slightly imbricated at the edges. Stamens equal in number, or some multiple of that of the petals, inserted upon a hypogynous disk : filaments flattened at the base, sometimes slightly cohering among themselves : anthers terminal, innate. Ovary many-celled : style 1, terete : stigma thickish, slightly divided. Fruit pulpy, many-celled, with a leathery glandulose valveless indehiscent rind ; cells verticillate, frequently separable without laceration, usually filled with pulp : pulp lodged in innumerable little sacs arising from the sides of the cell. Seeds attached to the axis, 1-∞, usually pendulous ; *raphe* and *chalaza*

usually very distinctly marked. Embryo straight: cotyledons thick, fleshy: plumule conspicuous.—*De Cand.* and *Lindl.*

Almost all the plants belonging to this tribe are natives of the East. Several species, however, have been very generally cultivated, and are now naturalized in different tropical countries. The wood is universally hard; all parts abound in a volatile fragrant oil; and the pulp of the fruit is more or less acid.

### I. TRIPHASIA.

Flowers with the proportion of the parts ternary. Stamens 6, free, rarely 5 and then the fifth opposite to a petal larger than the rest. Anthers subsagittate. Fruit 3-celled, 3-seeded. Embryos several in each seed.—*De Cand.*

#### 1. *Triphasia trifoliata.* *Three-leaved Triphasia.*

Leaves 3-foliate.

*Limonia trifoliata*, *Linn. mant.* 237.—*Jacq. Ic. Rar.* t. 463.  
—*T. trifoliata*, *De Cand. Prod.* I. 536.

HAB. Cultivated.

FL. Throughout the year.

This is a very common shrub in our gardens. It generally receives the name of the Chinese lemon. The fruit is red and juicy, the size of a small gooseberry, of an oval shape, and of an insipid taste with an aromatic flavour, by no means palatable. It is furnished with straight axillary spines, and, were it not so slow in its growth, it might be employed to make a strong and beautiful fence. It is a native of China, Cochin-China, and India.

### II. LIMONIA.

Flowers with the proportion of the parts quaternary or quinary. Calyx 4-5-partite. Petals 4-5. Stamens free, double the number of the petals, sometimes equal. Fruit berried, pulpy, 4-5-celled: cells 1-seeded.—*De Cand.*

*Name*, from *lymoun*, the general designation in Arabic for the orange tribe.

#### 1. *Limonia citrifolia.* *Lemon-leaved Limonia.*

Leaves simple and trifoliate, leaflets ovato-oblong

acuminate, peduncles axillary shorter than the petioles.—*De Cand.*

*De Cand. Prod.* I. 536.

HAB. Cultivated.

FL. Throughout the year.

This is a very common shrub in our gardens. It has neither beauty nor any remarkable property to recommend it. It is commonly called the Chinese Orange, and is a native of China.

### III. COOKIA.

Flowers with the proportion of the parts quinary. Calyx 5-fid. Petals navicular, villous. Stamens 10; filaments linear free; anthers subrotund. Ovary villous. Fruit berried, subglobose, 5-celled, by abortion 1-2 celled, with the cells 1-seeded.—*De Cand.*

*Named*, in honour of Captain James Cook, the celebrated navigator.

#### 1. *Cookia punctata.* *Wampee.*

Leaves ovato-lanceolate acuminate slightly unequal at the base.

*Jacq. Schœnb.* I. t. 101.—*Lam. Ill.* t. 354.

HAB. Cultivated.

FL. May.

This is a tree, very much branched, of moderate height. There are several plants of it in the Botanic Garden at Bath, and in its vicinity. It deserves to be more generally cultivated on account of the fruit, which is produced in clusters, of the size, and having a great deal of the taste of the grape, accompanied with a peculiar flavour, being very grateful to the palate.

### IV. CITRUS.

Flowers with the proportion of their parts generally quinary. Calyx urceolate, 3-5-fid. Petals 5-8. Stamens 20-60.

#### 1. *Citrus Medica.* *Citron.*

Petioles naked, leaves oblong rounded at the apex (rarely acute), stamens 35-40, fruit oblong with the rind thick and mamillated on the surface.

*Risso, Ann. Mus.* XX. 199. t. 2. f. 2.—*Bot. Miscel.* I. t. 295.

HAB. Cultivated and wild.

FL. Early in the year.

A shrubby tree, 8–10 feet in height : branches long, virgate, subtrigonal towards their extremities, glabrous, armed with horizontally spreading thorns. Leaves about 6 inches long and 2 broad, serrulato-crenated, of a yellow-green colour : petiole  $\frac{1}{2}$  of an inch in length. Peduncles axillary, solitary, usually 1-flowered. Petals 5, oblong, obtuse. Stamens of unequal length. Fruit of a bright yellow colour : rind divisible into two layers ; that which is external, composed of an infinite number of vesicles filled with essential oil ; the other, which is internal, thick, white, and forming the principal bulk of the fruit : pulp enclosed in a diaphanous membrane, and arranged into several compartments : compartments many-seeded.

The Citron is originally a native of Media. It passed from thence into Persia, and in course of time became known to the Greeks. It is considered to be the *MALUS MEDICA* of Theophrastus, and the *MALUM MEDICÆ* of Virgil. From a very early period, the Jews were acquainted with it. It is the fruit *HADAR*,—"the fruit of the tree that is beautiful"—mentioned in Leviticus (ch. xxiii. v. 40), which the people were directed on the Feast of Tabernacles, to bring with the young undeveloped leaves of the date palm before the Lord. This injunction is strictly observed to the present day. Particular care is taken to distinguish the proper fruit by its mammillated or tuberculated appearance, as the Lemon frequently acquires the same shape and size. Should the style or stigma be defective or injured, the fruit is immediately rejected. We find, in old Samaritan coins, a Citron represented attached to a palm : and Josephus informs us, that on one occasion, when Alexander, the King and High Priest, stood at the altar, the people revolted, and threw at him the Citrons they held in their hands.

This fruit is used only in confections. The pulp is in small quantity, and contains little acid. The rind affords a considerable proportion of essential oil.

## 2. *Citrus Limonum.* *Lemon.*

Petioles subalate, leaves oblong subacute, stamens 30–35, fruit oblong.

*Risso, Ann. Mus. XX. 201.—Bot. Miscel. I. 297.*

*HAB.* Cultivated and wild.

*FL.* Early in the year.

A tree, seldom more than 12 feet in height : branches long, twiggy, angulose towards their extremities, and glabrous with a violet tinge ; spines axillary, long, patent. Peduncles 1–6-flowered : flowers pedicelled, minutely bracteated. Petals usually 4 (from the union of two), previous to expansion tinged with violet. Filaments in two rows, with the inner row rather shorter. Fruit usually much smaller than the Citron, rugose, 9–11-celled.



This species is supposed to have been introduced into Europe, at the same time with the Orange, about the era of the Crusades. The rind, like that of the Citron, abounds with an essential oil. The acid obtained from the pulp resembles, and is employed for similar purposes as that of the Lime.

### 3. *Citrus Lima. Lime-tree.*

Petioles with the wings narrow, leaves oval obtuse obscurely crenulated, stamens 25, fruit subglobose, pulp acid.

*Bot. Miscel.* I. 300.

HAB. Cultivated.

FL. After the rains in Spring.

A tree, of a shrubby growth, seldom more than 12 feet in height; branchlets compressed, subtrigonal, glabrous. Leaves oval, obtuse. Spines axillary, divaricating. Calyx regularly 5-toothed. Petals 5, subequal, lineari-lanceolate. Stamens usually 25.

This plant forms a beautiful and strong fence: and, as it is of a quick growth, it attains, in not more than three years, sufficient height and strength, for the intended purpose. The rind of the fruit is thin, and the acid contained in the pulp, is very abundant, and much purer than what is procured from the lemon. The Lime, according to Galiseo, appears to have been, like the Citron, known at a very early period; and he states that it was the tree, which, with the box, according to Theophrastus, Harpalus found some difficulty in establishing at Babylon. It is from the fruit of this species that the principal supply of Citric acid is obtained. This acid is very much employed in dyeing, to brighten certain colours, such as those procured from indigo, *carthamus tinctorius*, &c. It is also of considerable value in a medicinal point of view, and the use of it has been found of service in preserving the health of seamen during long voyages. It may be sent to Europe by saturating quick-lime with the juice of the fruit, and packed in barrels.

### 4. *Citrus Limetta. Bergamotte or Sweet Lime.*

Petioles subalate, leaves ovate serrate, stamens 30, fruit subglobose, pulp sweet.

HAB. Cultivated.

FL. Beginning of the year.

This species has the growth of a tree, but in other respects, with the exception of what is noticed in the specific character, there is very little difference between it and the common Lime. It was first cultivated at Bergamo, a city of Italy; and hence it came to receive the name of Bergamotte.

5. *Citrus aurantium*. *Sweet Orange*.

Petioles subalate, leaves ovate acuminate with the apex obtuse remotely crenulato-serrulated, stamens 20-22, fruit globose with the rind thin and the pulp sweet.

*Risso, Ann. Mus. XX. 181. t. 1. f. 1. & 2.—De Cand. Prod. I. 539.—Bot. Miscel. I. 301.*

HAB. Cultivated and naturalized.

FL. January—April.

A tree, 20-25 feet in height, with the branches forming a spherical figure, towards their extremities 3-gonal, glabrous. Leaves ovate, indistinctly and bluntly serrulated, glabrous, pellucido-punctate, marked with green dots beneath. Wings of the petioles narrow. Spines axillary; in trees, producing the finer varieties of fruit, short. Flowers axillary, sometimes solitary, more usually arranged in racemes, 6-7-flowered: pedicels  $\frac{1}{2}$  an inch in length, thickened towards the flower, terete, articulated a short distance from, or at the insertion, where there is a small subulate deciduous bractea. Calyx irregularly 3-4-5-fid; divisions apiculated. Petals 4-5; when only 4 unequal; oblong, obtuse, externally virido-punctate, to the glass minutely ciliated. Ovary spherical, green: style slightly thickened towards the stigma, which is subcapitate. Fruit globose; pulp white, sweet.

The orange is deserving of cultivation, not only on account of the excellency of the fruit, but also as being among the most ornamental of trees. It is graceful in its port, with leaves beautifully formed and of a rich green, and filling the air with the perfume of its clusters of delicately white blossoms.

Var: *b. Citrus aurantium vulgare*. *Bitter or Seville orange*.

Petiole alate, leaves ovate acuminate with the apex obtuse remotely crenulato-serrulated, stamens 25, fruit globose with the rind thick, and the pulp bitter.

*Bot. Miscel. I. 301.—Citrus Sinensis, Pers. II. 74.—C. aurantium, Bot. Reg. t. 346.—C. vulgare, De Cand. Prod. I. 539.*

HAB. Cultivated.

FL. February—April.

A tree, more lofty than the variety bearing the sweet fruit. Leaves larger than those of the sweet variety, distinctly acuminate: petioles winged. Spines axillary. Flowers in an axillary raceme, fragrant. Calyx almost always 5-fid, with the teeth somewhat irregular and acute. Petals usually 5. Stamens

22-25. Style subclavate: stigma subcapitate. Fruit globose, with the rind usually thick, and with a deeper shade of red mixed with the yellow: pulp yellow more or less tinged with pink, acid and bitter to the taste.

The principal marks of difference, exclusive of the characters which may be taken from the fruit, between this and the variety bearing the sweet Orange, are, that in this the tree is loftier, the petioles distinctly alate, the calyx more regularly 5-fid, and the petals 5 in number.

The sweet and the bitter Oranges are considered, by De Candelolle and some others, as distinct species. This cannot in my opinion be the case, as it is a well established fact, familiar to every one who has been any length of time in this Island, that the seed of the sweet Orange very frequently grows up into a tree bearing the bitter fruit, numerous well attested instances of which have come to my own knowledge. I am not however aware, that the seed of the bitter Orange has ever grown up into the sweet-fruited variety. These two varieties of Orange would therefore appear to bear the same relation to each other, as subsists between the apple and the crab. The crab is considered to be the original stock of the apple, and its seed always produces a small acerb fruit: whereas, although the seed of any of the approved kinds of apple, such as the golden pippin, may occasionally grow up into a tree producing an esteemed variety of fruit, not inferior perhaps to that of the parent tree, yet in infinitely the greater number of instances it will be small and acerb, and in other words a crab. We may therefore conclude, that the bitter Orange was the original stock, and that, to certain accidental circumstances, such as the soil and climate being peculiarly favourable, and to cultivation, we are to ascribe the production of the sweet.

The bitter Orange appears to have been first cultivated in Europe during the middle ages. It was not for many years after, that the sweet was introduced. Hence the Arabian writers, who were the first to make any distinct mention of the fruit, describe it as acrid, and all the old established Orange groves of Spain, such as those of Seville, left by the Moors, belong to this variety. It is recorded that the first sweet Orange tree, was reared in the garden of the Count de St Laurent, at Lisbon; and that hence, it has come to be known by the name of the *Portugal Orange*. It is probable that the seeds were procured from China, as the Portuguese had, previous to this, discovered the route to India by the Cape of Good Hope.

The best Oranges at present brought to the European market, are from the island of St Michael, one of the Azores.

In no part of the world however are Oranges produced superior to those of which some parts of our Island can boast. In the parish of St John, in particular, the trees may be seen in thousands in the pastures and in the Negro villages, forming

beautiful objects during the months about Christmas, laden with their golden-hued fruit, which for richness of flavour and for sweetness cannot be surpassed. In that district a bitter or a sour Orange is rarely to be met. It is deserving of remark, indeed, that the sweet Orange is produced in its greatest perfection in districts which, like the parish of St John, belong to the limestone formation: whereas, they are very inferior, being more or less sour or bitter, even when raised from seeds of the sweetest sorts, when grown where any of the other rocks prevail.

Little or no care is bestowed in this country on the cultivation of the Orange. As the fruit, notwithstanding this, is produced in the greatest abundance, and of so fine a quality, it must appear surprising that it is not made an article of exportation, as few of our objects of cultivation would give a more profitable return. Were the fruit carefully hand-picked from the tree, on a dry day, and, after being slightly papered, packed in common flour barrels on the spot, there cannot be a doubt but that they would bear the voyage even to England, and arrive there in a marketable condition. We are anxious to establish the Clove and the Nutmeg, when we have already a tree, which would, were it more generally and carefully cultivated, give us an article of exportation, for which the demand is constant, and would in any part of the world command a market. Few trees are longer lived than the Orange, those of the Orange groves of Spain having survived six hundred years; and few are more productive, some individuals having been known to produce in one year six thousand Oranges.\*

The Sweet Orange, according to Dr Turner, contains malic acid; and we may ask, might not an effervescing liquor like cider be obtained from the juice? As a fruit, it is inferior to none: "the pulp is cooling and refreshing in fevers, inflammation, and scurvy, and alterative in phthisis and dyspepsia."† The bitter orange is employed in making, the well known conserve, marmalade: the peel in an aromatic bitter: the roasted pulp is an excellent application to fœtid sores; and the negroes employ it, as a substitute for soap, in washing their coarse linens. From the flower a distilled water is prepared.

## 6. *Citrus decumana.*    *The Shaddock.*

Leaves elliptic rounded at both ends subemarginate crenulated glabrous above puberulous especially along the nerves beneath, petioles alate, stamens 30-35, fruit very large with the rind thick.

\* Southern Agriculturist, Vol. iii. p. 638. 8vo. Charleston, 1830.

† Rennie's New Supplement to the Pharmacopeias, p. 40.



Pampel-moes, *Rumph.* II. t. 24. f. 2.—*De Cand. Prod.* I. 539.  
—*Bot. Misc.* I. 303.

HAB. Cultivated.

FL. February—May.

A tree 12–18 feet in height; crown flat; branches spreading, towards their extremities 3-gonal, anguloso-sulcated, and puberulous. Leaves alternate, petiolate, 5–6 inches long, and  $2\frac{1}{2}$ –3 inches broad, pellucido-punctate, glabrous and shining above, and distinctly pubescent beneath and ciliated especially when young: alæ of the petioles broad, crenulated, minutely ciliated. Spines usually wanting. Racemes subterminal, axillary, rather longer than the petiole, 3–9-flowered: flowers large, white, fragrant, pedicelled, furnished at the insertion with a small lanceolate bractea: peduncle angulose, as also the pedicels pubescent. Calyx irregularly 4- rarely 5-fid. Petals 4, rarely 5, oblong, obtuse, coriaceous, externally virido-punctate, internally longitudinally sulcated. Stamens 30–35. Disk annular. Ovary stipitate, globose, green, minutely puberulous: style terete, club-shaped: stigma subcapitate, turbinate.

There are two varieties of Shaddock. In var. *α. maliformis*, the fruit is globose, with the pulp of a pale pink colour, approaching to a very light yellow. In var. *β. pyriformis*, the fruit is more or less pear-shaped and the pulp is of crimson colour more or less intense. The second of these varieties is the most esteemed, being sweet and juicy, and having only in a slight and palatable degree the acidity which abounds in the first. There are very few good Shaddock trees in the Island. I may remark that I have always found the pear-shaped variety good, whereas it is seldom the case with the round-shaped fruit. There cannot be a doubt, but that if budding, as is done in China, were more generally practised, instead of trusting to propagation by the seed, that the fruit would be much improved.

This tree is a native of China. It was first brought from that country to the West Indies by Captain Shaddock, whose name has since been given to the fruit.

### 7. *Citrus Paradisi.* *Forbidden Fruit.*

Petioles alate, leaves oval rounded crenulated glabrous, stamens 25, fruit large.

This is a tree of a handsome appearance, about 30 feet in height, with branches suberect, and sharp at the apex. Leaves oval, rounded, crenulated, glabrous: petioles subalate. Spines, for the most part short, axillary. Flowers peduncled, axillary, either solitary or in a raceme of from 2 to 6. Bracteas one at the base of each pedicel, concave, lanceolate. Peduncle glabrous, half-an-inch long. Calyx irregularly 5-fid, faintly ciliated. Petals 4, lineari-oblong, rounded. Stamens 25–26. Fruit sweetish, subacid.



There are also two varieties of this species.

Var. *α. pyriformis* ; Barbadoes Grape Fruit.

Var. *β. maliformis* ; Forbidden Fruit.

The pear-shaped variety, as in the Shaddock, possesses most of the *sweet* principle, and is, on the whole, a preferable fruit.

## ORDER XXXIV. HYPERICINÆ.

Calyx 4-5 partite or of 4-5 sepals, persistent, unequal. Petals 4-5, hypogynous, alternating with the divisions of the calyx ; æstivation twisted. Stamens numerous, polyadelphous, anthers versatile. Ovary single, superior : styles many : stigmata simple. Fruit a berry or capsule. Seeds very many : embryo straight : radicle inferior : albumen none.

Herbaceous plants, shrubs, or trees, with a resinous juice. Flowers generally yellow. There are but few tropical species belonging to this order. The greater number are herbaceous and undershrubby plants, delighting in the shade of groves and thickets, in the cooler parts of Europe and Asia. The juice of many is slightly purgative, and several are said to possess a febrifuge property.

### ASCYRUM.

Calyx of 4 sepals ; the 2 outer small, the 2 inner larger. Petals 4. Stamens  $\infty$ , scarcely united at the base. Styles 1-3.—*De Cand.*

Shrubby plants. *Name*, from *α* privative, and *σχυρος* roughness ; i. e. a smooth plant.

#### 1. *Ascyrum hypericoides*. *St Andrew's-wort*.

Stem fruticose, branchlets ancipital, leaves oblongo-linear obtuse 2-glandulose at the base pellucido-punctulated, inner sepals elliptico-ovate, styles 2, capsule 1-celled.

*Swartz, Obs.* 294.—*Browne*, 309.

**HAB.** Common in the mountains on barren clayey soil.

**FL.** Throughout the year.

A shrubby plant, 1–2 feet in height, much and dichotomously branched, of a brownish colour, chaffy: branchlets compressed ancipital. Leaves opposite, sessile, oblongo-linear, blunt, glabrous, minutely pellucido-punctulated: glandules 2 at the base of the leaf at its insertion. Flowers terminal, solitary, pedicelled, yellow. Calyx, the 2 outer sepals small and linear; the 2 inner large, subrotundo-ovate, nerved, pellucido-punctulated, enclosing the petals, than which they are about 3 times larger, persistent. Petals spreading, cruciate, oblong, subacute. Stamens numerous, shorter than the petals; anthers roundish. Ovary oblongo-ovate, compressed; styles 2, short, erect, appressed: stigmata obtuse. Capsule covered with the marescent inner sepals of the calyx, oblong, compressed, apiculated with the persistent styles, 1-celled, 2-valved, many-seeded. Seeds oblongo-cylindrical, minutely scrobiculate, attached to the inflected edges of the valves of the capsule.

According to the character of this Order, given by De Candolle, the fruit is many-celled. There is an exception in this species at least. It is also stated, that the number of styles correspond to that of the cells, whereas in the plant before us, it is to that of the placentæ, which are attached along the inflected margins of the valves. This plant delights in clayey soils, and is usually found in mountain pastures with the fox-tailed grass and the broom (*CALEA SCOPARIA*). No description of stock appear to feed upon it. The Negro women tie bunches of it together, and make use of it as a broom, for which purpose it is well adapted.

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## ORDER XXXV. GUTTIFERÆ.

Calycine sepals 2–6, persistent, rounded, imbricated, opposite. Petals hypogynous, 4–10, generally yellow. Flowers hermaphrodite, monœcious, diœcious, or polygamous. Stamens numerous, hypogynous, rarely definite: anthers elongated, longitudinally dehiscent on the inner surface. Ovary 1, free: style none, or single, and usually short: stigma either sessile and peltato-radiated, or at the apex of the style and many-lobed. Capsule berried, or a berry or drupe, with the pericarp corticose, thick and many-valved; either one-celled, few-seeded, dry or filled

with pulp in which the seeds are nidulant, or many-celled with the cells 1- or many-seeded: albumen none: embryo straight: cotyledons thick.—*De Cand. abbr.*

Shrubs and trees, sometimes parasitic, yielding a resinous juice: leaves opposite, very rarely alternate, coriaceous, shortly petiolate, entire, with the lateral nerves pinnated: flowers generally racemose and axillary, or paniced and terminal, or crowded and lateral. They are natives of the East or West Indies. The fruit of many of the species is edible, and lusciously sweet to the taste. That of the *GARCINIA MANGOSTANA*, the *Mangosteen*, a tree which has been introduced into this Island, is described as surpassing all other fruits. With us, however, it does not deserve this character. It is probable that it may require certain peculiarities in soil and climate; as it is only in certain districts of India that it comes to perfection. Gamboge is the inspissated juice of the *STALAGMITIS CAMBOGIOIDES* of Murray, or *HEBRADENDRON CAMBOGIOIDES* of Professor Graham, a tree indigenous to Ceylon and a member of this Family.

### I. CLUSIA.

Calycine sepals 4–8, imbricated, coloured. Petals 4–8. Stamens numerous, rarely definite. Style 0: stigma radiato-peltate. Flowers commonly polygamous; with the ovary in those which are fertile surrounded by a short thick staminal nectary. Capsule fleshy, coriaceous, 5–12-valved, with the divisions dehiscent from the apex: placenta triangular, fixed to introflected valvules; the internal angles of the placenta forming a single central angulose placenta. Seeds terete, attached either to the central placenta or the lateral angles: cotyledons separable.—*De Cand.*

Parasitic trees, with opposite leaves.—*Named* in honour of Charles de l'Ecluse, a celebrated Botanist, who lived in the 16th century.

#### 1. *Clusia flava*. *Yellow-flowered Balsam-tree*.

Flowers polygamous, calyx of many sepals, petals 4 yellow, stamens numerous short, stigmata about 12, leaves obovate obtuse sometimes emarginate shortly petiolate striated.

*Terebinthus folio singulari non alato rotundo succulento, flore tetrapetalo pallide luteo, fructu majore monopyreno, Sloane,*

I. 91. t. 200. f. 1.—*Clusia arborea*, foliis crassis nitidis obovato-subrotundis, floribus solitariis, *Browne*, 236.—*C. flava*, *Jacq. Amer.* 272. t. 167.

HAB. Common, on rocks.

FL. Throughout the year.

A tree, seldom more than 20 feet in height, usually parasitic, of an irregular growth. Fruit size and shape of a fig; and hence it is commonly called the *wild fig* by the Negroes. A viscid yellow juice flows from every part of the plant when cut; but it is not known to possess any useful property, with the exception that it has been employed as a dressing to sores in horses, and by the Indians, mixed with tallow, to paint their boats.

## II. MAMMEA.

Calycine sepals 2, coloured. Petals 4, coriaceous. Stamens numerous, very short, with minute oblong anthers. Style 1, terete, persistent. Stigma capitate. Berry fleshy, generally crowned with the remains of the style. Seeds 4, or by abortion 2–3.

Trees: flowers hermaphrodite or male.—*Name*, from the American designation of the fruit.

### 1. *Mammea Americana*. *American Mamee-tree*.

Leaves oval acute at the base very obtuse at the apex entire, fruit large 4-seeded.

*Malus Persica maxima*, foliis rotundis splendentibus glabris, fructu maximo scabro rugoso, *Sloane*, II. 123. t. 217. f. 3.—*Mammea foliis ovalibus*, *Browne*, 248.—*M. Americana*, *Jacq. Amer.* 268. t. 181. f. 82.—*Vahl, Eclog.* II. 40.

HAB. Not uncommon; wild and cultivated.

FL. June.

A spreading tree: branches scabrous. Leaves opposite, petiolate, oval, rounded and sometimes emarginate at the apex, attenuated at the base, very entire, coriaceous, very glabrous, shining, transversely and parallelly striated: petiole about an inch in length, terete, plane above. Peduncles distributed along the branches; in the hermaphrodite trees solitary, in the barren 3–4 together, about an inch in length, 1-flowered. Flowers large, white, fragrant. Calycine sepals oval, concave, coriaceous. Petals 4; (sometimes 5 and then unequal), elliptic, rounded at the apex, concave. Stamens numerous, inserted on the torus; filaments short, cohering at the base: anthers club-shaped. Pistil, in the barren flowers, awanting; in the fertile, the ovary globose: style thick, cylindrical: stigma capitate. Fruit size of the largest orange, of a russet colour: seeds rarely 4; usually, from abortion 3–2.

This is a lofty tree, with spreading branches. The fruit is held in some esteem. The fleshy and edible portion is yellow, and of a sweetish somewhat aromatic taste, bearing a resemblance to that of the carrot, and of a peculiar odour. It is eaten plain, or in slices, with wine and sugar, or preserved in sugar. The seeds are very bitter; but no other property has hitherto been ascribed to them. A *liqueur* has been obtained by distillation from the flowers infused in spirits of wine, known in Martinique by the name of *Creme des Creoles*. The gum, obtained from the stem and branches, is employed by the Negroes as an application to extract chigoes: dissolved in lime juice, it destroys maggots in sores at a single dressing; and an infusion of the bark is astringent, and is useful to strengthen the recent cicatrices of sores. The tree, from the root being fusiform, is not easily transplanted. The French name of the fruit is *aubricot sauvage*: the Spaniards, like the English, retain the Carib designation.

### III. CALOPHYLLUM.

Calycine sepals 0-2-4, coloured. Petals 4. Stamens numerous, polyadelphous at the base, or free: anthers oblong. Style thick: stigma simple or capitate. Drupe globose or ovate, with the nut from abortion 1- rarely 2-seeded.—*De Cand.*

Trees, with the nerves of the leaves transversely parallel, and with the flowers racemose.—*Name*, from *καλός* *beautiful*, and *φυλλον* *a leaf*.

#### 1. Calophyllum Calaba. *Santa Maria*.

Leaves ovate obtuse, flowers hermaphrodite or stamiferous, racemes lateral short.

Mali Persicæ Mammææ dictæ folio arbor, *Sloane, Cat.* 180. —Arbor altissima foliis oblongis nitidissimis nervosis, *Browne*, 372.—Calophyllum Calaba, *Jacq. Amer.* 269, t. 165.—*Swartz, Obs.* 216.—*De Cand. Prod.* 1. 562.

HAB. Damp woods.

FL. October, November.

A lofty tree. Leaves shortly petiolate, ovate, obovate, or oblong, obtuse, emarginate, thick, leathery, shining, about 4 inches in length. Racemes lateral, few-flowered: flowers white, fragrant, polygamous. Calycine sepals 2, subrotund, concave, obtuse with a small point, coloured, deciduous. Petals subrotund, concave. Stamens in the fertile flowers 10; in the barren about 60; filaments short: anthers oblong. Ovary subrotund: style none: stigma capitate. Drupe, according to Jacquin, green, with the rind thin: nut hard, smooth, ash-coloured.

This is a common tree, in the damp mountain districts, on



the North-side of the Island. It there grows to a great height, with a straight thick stem. It is of some value as a timber tree; being employed for making shingles, and for staves for rum puncheons, and for boards for inside work. The puncheons made of this wood, require to be charred, previous to the rum being placed in them. The stems were employed by Dampier, for the masts of ships; and the planks have been, but not on very certain authority, recommended in ship-building, as equal in durability to oak.

Jacquín states that an oil may be expressed from the fruit, which is employed, according to his observation, by the natives for their lamps.

The name *Santa Maria*, was given, according to Barham, to this tree, from the juice which exudes from the stem, branches, and even the leaves, constituting a valuable balsam, useful in dressing wounds, known by the names of *Green balsam*, *Mary's balsam*, *Calaba balsam*, &c. The specific designation *CALABA*, was the name by which the tree was known among the Caribs.

#### IV. CANELLA. *Canella*.

Calycine sepals 3. Petals 5, subcoriaceous glaucous, during æstivation contorted. Stamens united into a tube; anthers 15. Stigmata 3. Berry 3-locular (sometimes from abortion 1-locular); locules 1-2 seeded.

The name *Canella* was given to this tree, on account of the resemblance of the pungent taste of its bark to the aromatic flavour of that of the *Canella* Cinnamon.

##### 1. *Canella alba*. *Winter's Bark*, or *Laurel-leaved Canella*.

*Arbor baccifera laurifolia aromatica*, Sloane, II. 87. t. 191. f. 2.—*Canella foliis oblongis obtusis nitidis*, Browne, 275. t. 27. f. 3.—*C. alba*, Swartz, Linn. Trans. I. 96. t. 8.—*Gærtn. de Fruct.* I. 373. t. 77.

HAB. Common in the lower woods, and on hills where the white limestone prevails. In the neighbourhood of Drummond Castle, Port-Royal.

FL. August, September.

A lofty tree, the stem straight, branching at the top: branches dichotomously dividing. The outer bark brownish, ash-coloured; inner thicker of a light colour. Leaves situated towards the ends of the branchlets, sparse, petiolated, obovate, slightly emarginate, entire, glabrous, obscurely nerved, 2 inches long, and 1 broad: petiole short, plane above. Raceme terminal, shorter than the leaf, compound, cymose; peduncle 3-gonal; pedicel 3-gonal,  $\frac{1}{3}$  of an inch in length, 1-flowered;

flowers small, seldom found open, of a purple or violet colour. Sepals 3, their edges overlapping, rounded, to the glass puberulo-ciliated, externally cinereo-glaucous, persistent. Petals concave, thick, deciduous. Anthers resembling furrows on the nectary-like tube of the filaments. Ovary globose; a portion of the style persistent. Berry size of the largest pea; when ripe, black. Seeds in general only two, dark-brown, globosobreniform. Albumen watery. Embryo minute, curved, of a yellow tinge, situated at the rostellum of the seed.

Although this has received the name of Winter's bark, it is very different from the *Wintera aromatica*, a native of the shores of Magellan's straits, which yields the true bark of that name. It resembles it, however, in its properties, and admits of being used medicinally as a substitute. It is sold in flat or quilled pieces, is of a yellowish colour, smells like cloves, and is of a warm bitterish pungent taste. Chemical analysis gives a resin, a volatile oil, extractive matter, colouring matter, gum, starch, albumen, acetates of potash and lime, hydrochlorate of potash, hydrochlorate of magnesia, &c. Spirits are the best solvent, as water extracts only the bitter without the aroma. Its effects are carminative, tonic, and stomachic. The dose of the powder is from gr. x, to ℥i. It is given in dyspepsia, and atonic diseases, and is snuffed up the nostrils as a cephalic. A warm aromatic oil may be obtained by distillation, resembling, in taste and other properties, that obtained from cloves.

The whole tree, according to Swartz, is very aromatic, and when in blossom perfumes the whole neighbourhood. The flowers dried and softened again in warm water, have a fragrant odour, nearly approaching to that of musk. The leaves have a strong clove-like smell. The berries when ripe are greedily sought after by the different varieties of pigeons, which abound in our woods, and gives to their flesh the peculiar flavour for which they are so prized. The Caribs are said to have employed the bark, with the fruit of *Capsicum*, as a condiment in their drink and food.

## V. MORONOEBA.

Calycine sepals 5. Petals 5, coriaceous, twisted during æstivation. Stamens monadelphous at the base, 5-fasciculated above: anthers external, 3 at the middle of each fasciculus, linear. Style 1; stigmata 5. Berry 5-celled, with the cells 2-seeded, or fewer from abortion.

A Genus established by Aublet.—*Name*, probably derived, from *μωρον* the *Mulberry*, and *οψις* *appearance*, from the resemblance of the berry to that fruit.

1. *Moronobea coccinea*. *Hog Gum-tree*.

Bud globose, style very short, leaves oblong acute at both ends coriaceous impunctate.

*Symphonia globulifera*, Willd. *Sp.* III. 585.—*Moronobea coccinea*, Aubl. *Gui.* II. 789. t. 313.—*Bancroft, MSS.*

HAB. Damp mountain forests, St George's and Portland.

FL. October; or May.

A lofty tree, attaining 90–100 feet in height, with the stem straight and erect, and the branches horizontally spreading; branchlets opposite, terete, glabrous. Leaves opposite, petiolate, oblong, acute at the base, acuminate at the apex, entire, coriaceous, transversely and parallelly nerved, glabrous, impunctate, 3–4 inches long, and  $1\frac{1}{2}$  broad. Umbel subterminal, simple, about 10-flowered: flowers scarlet, on short terete pedicels. Calycine sepals 5, rounded, imbricated. Petals 5, many times larger than the sepals, roundish, concave. Stamens united at the base, pentadelphous above, with each fasciculus consisting of 3 filaments, and bearing 3 anthers on the middle of their outer surface: anthers 2-celled, linear. Ovary ovate, 5-celled: cells 2-seeded: style 1: stigmata 5, radiato-divaricating. Fruit with the pericarp coriaceous; by abortion, 1-celled, and 1-seeded.

The Hog-Gum was erroneously stated by Sloane, to be obtained from the *Rhus Metopium*; and in this he has been followed by Browne, and other writers on Jamaica Botany. It is only, however, procured from the tree before us, by wounding the bark. The Gum which exudes, is at first fluid and pellucid, but afterwards changes to a yellow colour, and becomes hard and friable, resembling Burgundy pitch in appearance. It has a slight aromatic odour, is insipid to the taste, softens under the teeth, and melts to the flame of a candle. It receives in South America the name of *Mani* or *Manil*. It is known with us by that of the *Hog-Gum*, and the tree is called the *Hog-Gum*, or *Hog-Doctor Tree*, from the Hogs, it is stated, when wounded, resorting to it, and rubbing the injured part against the bark, so as to smear the wound with the gum. It has been given internally, in the form of pills, as a substitute for Balsam of Copaiba. Two table-spoonfuls of the recent juice, diluted with water, and sweetened, is stated by Barham, to give relief in belly-ache or colic. Mixed with lard, wax, and rosin, it forms an ointment, well adapted as a dressing for indolent sores. Spread on leather, it is employed in plasters, as a substitute for Burgundy pitch. The Indians of the Continent make torches with it, which give a good light without much smoke or smell; and employ it to pitch the outside of their boats, and to fix on a head of fish-bone to their arrows. This tree is a native of the Continent, as well as of Jamaica, Trini-

dad, and others of the West India Islands. It has probably become so generally diffused, from the wild pigeons feeding on the berries, and thus conveying the seeds to distant parts.

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## ORDER XXXVI. MARCGRAVIACEÆ.

Calycine sepals 2-7, ovate, generally coriaceous and imbricated. Corolla hypogynous; sometimes monopetalous, and calyptriform; at other times of 5 petals. Stamens indefinite, inserted either on the receptacle, or on a hypogynous membrane: filaments dilated at the base: anthers elongated, innate, bursting inwards. Ovary single, free: style 1: stigma simple or capitate. Capsule coriaceous, commonly subglobose, many-valved, scarcely dehiscent: disseminents from the middle of the valvules, but not meeting in the centre, so that the fruit is 1-celled: seeds very numerous and very minute, nidulant in pulp.

Shrubs; with leaves alternate; flowers in umbels or spikes; and peduncles naked, or furnished with either simple or cuculate hollow bracteas. Natives of equinoctial America, with the exception of one species, *ANTHOLOMA MONTANA*, found in New Caledonia. *Properties* unknown.

### I. MARCGRAVIA.

Calyx 6-partite, persistent, ovato-rotund, coriaceous, imbricated, unequal. Corolla coriaceous, conical, entire. Stamens in 1 row, inserted on the membranule surrounding the ovary; anthers oblong, longitudinally dehiscent. Style scarcely any. Stigma thick, persistent. Capsule coriaceous, berried, subglobose.

*Named* in honour of George Marcgraff of Leibstadt, author of a work on the Natural History of Brazil, published in 1648.

1. *Marcgravia umbellata*. *Umbellated Marcgravia*.

Leaves of the sterile branches sessile oval cordate obtuse, of the fertile oblongo-ovate acuminate obscurely veined, peduncles umbellated, bractæas cuculiform.

Phyllitidi scandenti affinis major, folio crasso subrotundo, *Sloane*, I. 74. t. 28. f. 1. (*mala*.)—*Marcgravia scandens*, *Browne*, 244. t. 26.—*M. umbellata*, *Jacq. Amer.* 156. t. 96.—*Swartz, Obs.* 205.—*Lam. Ill.* t. 447.

HAB. On rocks in the mountains.

FL. May—October.

The early branches rooting; those which are older and fertile pendulous, simple, subterete, warty, glabrous. Leaves of the sterile branches subsessile, oval, cordate, obtuse, with a row of glandulose dots along the margin which is entire; leaves of the fertile branches alternate, very shortly petiolate, distichal, oblong, or ovato-oblong, acuminate, entire, membranaceo-margined, with two lines of glandulose dots, one of them indistinct passing along the margin, the other more distinct, situated more interiorly; coriaceous, obscurely nerved. Umbel terminal, 20–30-flowered: common peduncle sulcato-tetragonal: pedicels an inch and a half in length. Bractæas about 5 in number, in the centre of the umbel, shortly pedicelled, club-shaped and rounded at the apex, excavated at the base on the side towards the flowers. Calyx very short, urceolate, 6-partite: divisions rounded, imbricated. Corolla coriaceous, oblongo-conical, entire, of a greenish colour, calyptriform, imperforate, separating at the base, caducous. Stamens 15; filaments dilated at the base: anthers oblong, yellow. Ovary subrotund, truncated, terminating in a short subconical stigma with little or no style.

## ORDER XXXVII. HIPPOCRATEACEÆ

Calycine sepals 5 (rarely 4–6), minute, united as far as the middle, persistent. Petals 5 (rarely 4–6), equal, hypogynous(?), subimbricated during æstivation. Stamens 3, rarely 4–5; filaments distinct at the apex, united towards the base into tubes and forming about the ovary a thick disk-like cup: an-



thers 1-celled, opening transversely at the apex, or 2- or even 4-celled. Ovary concealed by the tube, distinct: style 1: stigmata 1-3: ovules erect. Fruit either 3 samaroid carpels, or berried with from 1 to 3 cells. Seeds 4 or more in each cell, attached to the axis in pairs, sometimes several of them abortive, erect, exalbuminose. Embryo straight: radicle pointing towards the base: cotyledons flat, elliptico-oblong, somewhat fleshy, cohering when dry.

Arborescent or climbing shrubs; principally natives of South America. The fruit of *TONSELLA PYRIFORMIS*, a native of Sierra Leone, about the size of a Bergamot pear, is said to have a rich sweet flavour, and to be eatable: and the nuts of *HIPPOCRATEA COMOSA*, a native of St Domingo, are, according to Swartz (*Fl. Ind. Occ.* I. 78.), sweet and oily.

### I. HIPPOCRATEA.

Petals generally foveated at the apex. Stamens 3. Anthers 1-celled, transversely dehiscent. Carpels 3 (or by abortion 1-2) samaroid, bivalved, with the valves keeled and very much compressed. Seeds winged downwards, from the umbilical cord being very much expanded.—*De Cand.*

*Named*, by Plumier, in honour of Hippocrates, the celebrated Greek physician.

#### 1. \* *Hippocratea ovata*? *Ovate-leaved Hippocratea.*

Carpels ovate, panicles axillary subdichotomous, leaves oblongo-ovate or elliptic serrated.—*De Cand.*

*H. volubilis*, Swartz, *Obs.* 28.—*Robinson*, in *Lunan's Hort. Jam.* I. 373.—*H. paniculata*, Rœm. et Schultz, *Mant.* I. 396.—*H. ovata*, Lam. *Ill.* I. 100. t. 28. f. 2.

HAB. Near Cabaritta River.—*Robinson*. Near the fording at Ginger-Hall Works, St Thomas in the East.

FL. Spring.

A scandent shrub: branches opposite, stiff, arched, patent, Leaves opposite, subcoriaceous, glabrous. Racemes terminal; divisions opposite. Flowers small, greenish-white, subsessile. Carpels an inch in length.

I regret having omitted examining this plant in a more particular manner.

## ORDER XXXVIII. ERYTHROXYLÆ.

Sepals 5, concrete at the base, persistent. Petals 5, hypogynous, broad at the base, augmented internally with a plaited scale, alternate with the sepals, equal, previous to flowering with the margins lying on each other. Stamens 10: filaments combined at the base into a little cup; anthers innate, erect, 2-celled, opening lengthwise. Ovary 1-celled, or 3-celled with 2 of the cells empty: ovule solitary, pendulous: styles 3, distinct: stigmata 3, subcapitate. Fruit drupaceous, 1-seeded. Seed angular: albumen horny: embryo linear, straight, central: cotyledons linear, plane, leafy: radicle superior, terete, straight: plumule inconspicuous.

Shrubs or trees: young shoots often compressed and covered with acute imbricated scales. Leaves alternate, seldom opposite: stipules axillary. Flowers small.—Chiefly natives of the West Indies and South America. The wood of some is of a red colour. The bark of one species (*ERYTHROXYLUM HYPERICIFOLIUM*), a native of Brazil, yields a permanent reddish brown dye. The leaves of the *E. COCA*, are employed by the Peruvians, mixed with the ashes of the *CHENOPODIUM QUINOA*, as a masticatory, in the manner of the *betle* in India; and it is said to remove, and to enable them to endure hunger, and to undergo fatigue and want of sleep.

## I. ERYTHROXYLUM.

Calyx 5-partite 5-angular at the base. Styles 3, distinct from the base.

*Name*, from *ερυθρος* red, and *ξύλον* wood.

1. *Erythroxylum obovatum*. *Small leaved Red-wood*.

Leaves obovato-subrotund rounded and emarginate at the apex, wedge-shaped at the base, membranaceous glabrous, stipules shorter than the petiole, pedicels about 6 together axillary half the length of the petiole.

*E. foliis minoribus rotundis*, Browne, 276.—*E. rotundifolium*, Lun. Hort. Jam. II. 116.

HAB. Common on Lime-stone hills.

FL. June—August.

A shrubby tree about 12 feet in height: branches spreading, terete, glabrous, albido-rimoso-papillose. Leaves alternate, or 2-4 crowded together at the extremity of a short branchlet, petiolate, obovato-subrotund, wedge-shaped at the base, rounded (sometimes slightly emarginate) at the apex, entire, glabrous, thin, membranaceous, obscurely nerved, pale, (glaucous) beneath, little more than an inch in length: petiole short, twice the length of the pedicels, filiform. Stipules small, lanceolate, deciduous, half the length of the petiole. Flowers small, white, very shortly pedicelled, 4-10 (usually 6) together, axillary, furnished at the base with minute ovate acute brown scariose scales. Calyx pentangular at the base, 5-fid; divisions ovate. Petals 5, alternating with the calycine lobes, and twice their length, oblong, obtuse, keeled on the back, concave internally, and furnished about the middle with a convoluted petaloid appendage. Stamens 10, inserted on the inside of an urceolate minutely denticulated nectary or disk: filaments subulate: anthers oval. Ovary ovato-conical: styles 3, very short: stigmata simple.

This species is probably identical with *E. OBTUSUM* of De Candolle, noticed by Kunth as a native of Cuba.

## 2. *Erythroxylum areolatum*. *Areolated-leaved Red-wood*.

Leaves elliptico-obovate areolated mucronate glaucescent beneath, pedicels lateral several aggregated scarce twice the length of the flower.

*E. foliis ellipticis*, *Browne, Jam.* 278. t. 38. f. 2.—*E. areolatum*, *Swartz, Obs.* 184.—*E. Carthagenense*, *Jacq. Amer.* 134. t. 187. f. 1.

HAB. In dry situations. Near the sea-shore.

FL. May—June.

A shrubby tree, about 10 feet in height: branchlets short, ash-coloured, scabrous. Leaves alternate, or more commonly crowded at the ends of the branchlets, petiolate, elliptic, slightly obovate towards the base, rounded sometimes emarginate at the apex, entire, glabrous, glaucescent beneath, pinniveined, and in addition marked with two obscure nerves subparallel to the mid-nerve, enclosing an areolated spot, distinctly observable on holding the leaf up to the light; an inch and a half in length, and half-an-inch in breadth: petiole short, terete. Stipules acute, sharply 2-ridged. Peduncles lateral, towards the ends of the branchlets, 1-5 together, 1-flowered, length of the petiole. Flowers small, white, slightly fragrant. Calyx minute; teeth 5, acute. Petals 5, clawed, oblong, obtuse, al-

nating with the teeth of the calyx, valvular, each with a bifid (?) plaited scale at the base. Stamens 10, rather longer than the petals, slightly monadelphous at the base. Ovary globular, sub-3-gonal: styles 3, very short: stigmata capitate. Drupe oblong, obsoletely 3-gonal, scarlet, resembling the fruit of the *Barberry*, 1-seeded: seed costate, especially on one side.

This shrubby tree ripens its fruit in May, when, from its numerous bright scarlet berries, it readily attracts notice.

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## ORDER XXXIX. MALPIGHIACEÆ.

Calycine sepals 5, slightly combined, persistent. Petals 5, alternate with the lobes of the calyx, inserted on a hypogynous disk, clawed. Stamens 10, alternate with the petals. Ovary 1, generally 3-lobed, formed of 3 carpels, more or less combined: styles 3, distinct or combined into 1. Fruit dry or berried, 3-celled or 3-lobed; cells 1-seeded. Seeds pendulous, without albumen: embryo more or less curved or straight: radicle short: lobes leafy or thickish.

Shrubs or trees. Leaves opposite, scarcely ever alternate, without dots, generally furnished with stipules. Flowers racemose or corymbose. Pedicels articulated about the middle, with a pair of minute bracteas. Almost exclusively natives of intertropical America. The fruits of a few of the species are edible. The bark of *MALPIGHIA MOUREILA*, is, according to Aublet, employed in Cayenne as a substitute for bark. With these exceptions, no remarkable properties can be assigned to any of the Tribe.

### I. MALPIGHIA.

Calyx 5-partite, furnished externally at the base with 8–10 glandules. Petals clawed. Stamens with filaments shortly monadelphous at the base. Styles 3, distinct. Drupe containing 3 one-seeded stones.

Shrubs. Peduncles axillary, either one-flowered or bearing umbellated pedicels.—*Named*, by Plumier, in honour of Marcello Malpighi, Professor of Medicine at Bologna, author of the *Anatomia Plantarum*, published in 1765 and 1769.

1. *Malpighia urens*. *Stinging West-India Cherry*.

Branches pubescent, leaves oblongo-ovate sub-acuminate with the apex sharp rounded at the base glabrous above appresso-setose beneath, racemes axillary solitary corymbose.

Arbor baccifera, folio oblongo subtilissimis spinis subtus obsitis, fructu cerasino sulcato polypyreno, ossiculis canaliculatis, *Sloane*, II. 106. t. 207. f. 3.—*Malpighia foliis oblongis hispidis*, *Browne*, 229.—*M. urens*, *Cav. diss.* t. 235, f. 1.—*Lam. Ill.* t. 381. f. 1.—*De Cand. Prod.* I. 577.—*M. Cubensis?* *H. B. & Kunth*, V. 145.

HAB. Not uncommon : Port-Royal mountains ; Rocky point, at the East end of the Island.

FL. April.

About 6 feet in height : branches sub-erect, terete, with branchlets sub-compressed, pilose with appressed hairs which in the old branches are black. Leaves opposite, shortly petiolated, oblongo-ovate, subacuminate with the apex acute, glabrous above, appresso-setose with stinging yellow setæ beneath : petiole very short. Peduncles axillary, short, bearing about 4 pedicelled purple flowers in a corymbose raceme shorter than the leaf : pedicels rather more than half an inch in length, arising nearly from the same point of the peduncle, filiform, alternate, furnished at the insertion with a minute bractea, and with a similar pair where it is jointed below the middle. Calycine divisions lanceolate, setoso-pubescent. Petals purple, two of them rather larger than the rest. Filaments subulate, united for a short distance at the base. Styles longer than the stamens : stigmata green.

2. *Malpighia glabra*. *Glabrous Barbadoes Cherry*.

Leaves ovate acuminate acute at the base very entire glabrous, peduncles axillary umbellated.

Arbor baccifera, folio subrotundo, fructu cerasino sulcato rubro polypyreno, ossiculis canaliculatis, *Sloane*, II. 106. t. 207. f. 2.—*Malpighia fruticosa erecta, foliis nitidis ovatis acuminatis, floribus umbellatis, ramulis gracilibus*, *Browne*, 230.—*M. glabra*, *Willd. Sp.* 731.—*Mill. Dict.* t. 181. f. 2.—*Cav. diss.* t. 234. f. 1.

HAB. Common on the lower hills.

FL. September—November.

A shrub about 5 feet in height : branches erect, towards their extremities compressed, pilose with appressed hairs. Leaves ovate, acuminate with the apex sharp, acute at the base, entire, obscurely nerved, glabrous, 2–3 inches in length. Stipules inter-petiolar, minute, subulate, hairy. Raceme umbellated,



axillary, shorter than the leaf, solitary : common peduncle half an inch in length with appressed hairs ; pedicels of the same length, one-flowered, with a pair of minute bracteoles below the middle : flowers purple. Calycine segments oblong, concave, 6–8 glandulose (one of the segments being eglandulose and those on each side having in general only one glandule). Petals with the limb crisped, fimbriated. Filaments subulate, connate at the base : anthers yellow, tetragonal. Ovary ovoid, glabrous : styles 3 : stigmata simple. Drupe spherical, from the size of a large pea to that of a small cherry, smooth, shining, scarlet, bearing the persistent remains of the styles : seed 3, triquetrous with the angles acute, and with a sharp longitudinal ridge running down the centre of the outer side.

The fruit of this species is juicy and of a sweet but rather insipid taste, and is scarcely ever brought to the dessert. In the wild state, this is a lowly shrub. When cultivated in gardens, however, it attains the size of a small tree and the fruit is much larger and more juicy ; but the leaves are usually smaller. I have no doubt, but that the fruit might be still more improved, by further cultivation.

### 3. *Malpighia puniceifolia*. *Pomegranate-leaved West-India Cherry*.

Leaves ovate very entire glabrous, peduncles axillary 1-flowered.

*M. fruticosa erecta, floribus solitariis, Browne, 230.*—*M. mali punci facie, Plum. Gen. 46. t. 160. f. 2.*—*M. puniceifolia, Lamarck, Encycl. IV. 303.*

HAB. Woods near Bath, St Thomas in the East.

FL. Autumn.

This has a great resemblance to *M. GLABRA*, of which it probably is only a variety.

## II. BYRSONIMA.

Calyx 5-partite, externally at the base 8–10 glandulose. Petals clawed. Stamens 10 shortly monadelphous at the base. Styles 3. Drupe with a nut 3-celled, 3-seeded.—*De Cand.*

Racemes spiked, terminal, simple or branched.

### 1. *Byrsonima coriacea*. *Lotus-berry Tree*.

Leaves oblongo-ovate acuminate ; the young leaves ferrugineo-sericeo-tomentose, the adult subglabrous ;

racemes densely spiked simple, peduncles and pedicels ferrugineo-tomentose.

*Tiliæ affinis laurifolia*, arbuti floribus albis racemosis odoratis, fructu pentagono, *Sloane*, II. 20. t. 163. f. 1. ?—*Malpighia arborea*, *Browne*, 230 ?—*M. arborea*, foliis subrotundis, *Browne*, 231.—*M. coriacea*, *Swartz*, *Fl. Ind. Occ.* 854.

HAB. Common on the South-side of the Island. Port-Royal Mountains.

FL. June—August.

A tree, 20–30 feet in height: branches terete, glabrous, except towards the extremities of the branchlets, where they are ferrugineo-sericeo-tomentose. Leaves opposite, petiolate, 6–8 inches long and  $2\frac{1}{2}$  broad, lanceolato-ovate or oblongo-ovate, acuminate with the apex bluntish; the young leaves sericeo-tomentose (resembling in colour the under surface of those of the star-apple tree): the adult leaves smooth shining above, partially ferrugineo-tomentose at the base of the mid-nerve on the undersurface: petiole terete, ferrugineo-tomentose. Racemes terminal, erect, simple, somewhat longer than the leaves. Flowers numerous, crowded, yellow, with an orange tinge, inodorous. Common peduncle angulose, ferrugineo-tomentose: pedicels  $\frac{1}{2}$  an inch in length, ferrugineo-tomentose, one-flowered, 2–3 together, furnished at their insertion with small subulate bracteas. Calyx 5-partite: divisions ovate, obtuse, erect, each furnished at the base with a pair of rather large glandules. Petals on a long channelled claw, roundish, concave, plicato-corrugated. Stamens 10: anthers opening by 2 longitudinal slits. Ovary villous: styles 3, subulate: stigmata acute. Fruit size of a small *cherry*, yellow: nut single.

The above description differs in several respects from those of former Botanists. The leaves are not acute, nor is the calyx 10-crenated as stated by *Swartz*: nor are the flowers white and odorous as described by *Sloane*.

This is a common but a very beautiful tree, graceful in its port, and, when in flower, conspicuous for its profuse golden-coloured flowers. The fruit is very palatable, and deserving of a place at the dessert. It has received, I presume, the name of *Lotus berry*, from its resembling in taste, that of *ZIZIPHUS LOTUS*.

### III. BUNCHOSIA.

Calyx 5-partite, externally 8–10 glandulose at the base. Petals clawed. Stamens 10, monadelphous at the base. Style 1, simple or 2–3-cleft at the apex. Drupe with 2, rarely 3, nuts.

Racemes axillary, loosely spiked or subpanicled.

1. *Bunchosia media*. *Yellow-flowered West-India Cherry*.

Leave oblongo-lanceolate acute at the base obtuse at the apex with a glandulose spot on each side of the mid-rib towards the base, racemes simple, pedicels jointed and furnished with 2 glanduliferous ciliated bracteas near the base, style 3-gonal, stigma 3-lobed.

*Malpighia media*, *Ait. Hort. Kew.* III. 103.—*Bunchosia media*, *De Cand. Prod.* I. 581.

HAB. Road from Green Valley to Tweedside, Port-Royal mountains.

FL. April—May.

A shrub about 8 feet in height, erect: branches terete, ash-coloured, papillose. Leaves opposite, petiolate, elliptic, attenuated at the base, blunt at the apex, entire, obscurely nerved and veined, glabrous (but to the glass furnished with distant very minute appressed setæ); a round green glandulose spot on each side of the mid-rib, and towards its base: petiole short. Racemes simple, axillary, in general longer than the leaf: peduncles angulose; pedicels 1-flowered,  $\frac{1}{3}$  of an inch in length, jointed near the base. An ovate deciduous bractea at the insertion of each pedicel, and a pair of minute ovate bracteoles (glandulose on the back and near the base) situated at the joint of each pedicel. Flowers yellow. Calyx at the base 8-glandulose: divisions blunt, ciliated. Petals with a long claw, roundish, concave, with the margin plicato-lacerated. Stamens 10: filaments subulate, monadelphous at the base. Ovary conical, glabrous, style subulate, 3-gonal. Stigmata 3-fid. Drupe size of a pea, red, sub-3-lobed: nuts 2–3, with the shell thin, membranaceous.

2. \* *Bunchosia nitida*. *Shining Bunchosia*.

Leaves oblong acuminate glabrous eglandulose, racemes simple shorter than the leaf.

*Malpighia humilis et minus divisâ, foliis ovatis nitidis, baccis durioribus*, *Browne*, 230?—*M. nitida*, *Swartz, Obs.* 180?—*Jacq. Amer.* 136?—*Cav. diss.* VIII. 411. t. 239. f. 1.

HAB. Limestone districts.—*Swartz*.

FL. Summer.

A shrub, about 3 feet in height: branches decussating, erect, terete, with the bark shining. Leaves decussato-opposite, pale green, shining: petiole short. Racemes axillary, shorter than the leaf, many-flowered: flowers yellow, size of those of the *MALPIGHIA GLABRA*. Styles 3. Berry globose, subrotund, 3-lobed, 3-seeded, red: seeds oblongo-angulated, osseous.

It is probable that Swartz's plant is identical with that which I have described as *B. MEDIA*; and that the glandules of the leaves, and flower-stalks escaped his observation. According to Jacquin, whose specimens were collected at Carthagera, the style is single.

3. \* *Bunchosia paniculata.* *Panicled Bunchosia.*

Leaves oblong cordate acuminate glabrous, racemes panicled axillary and terminal.

*Malpighia paniculata*, *Mill. Dict.* No. 6.—*Bunchosia paniculata*, *De Cand. Prod.* I. 582.

HAB. ———?

FL. ———?

A shrub with purple flowers.

#### IV. TRIOPTERIS.

Calyx 5-partite; divisions biglandulose at the base. Petals subrotund, clawed. Stamens 10, with the filaments subulate, subcoherent at the base, alternately longer. Styles 3. Carpels 3, united at the base, 1-seeded, expanded into 3 wings, of which 2 are superior and 1 inferior, with sometimes a small dorsal crest.—*De Cand.*

*Name*, from τρεῖς *three*, and πτερον *a wing*.

1. \* *Triopteris Jamaicensis.* *Jamaica Triopteris.*

Leaves oblong acuminate venose glabrous, petioles eglandulose.

*Banisteria capsulis triatis, foliis ovato-acuminatis, racemis terminalibus*, *Browne*, 231.—*Triopteris Jamaicensis*, *Swartz, Obs.* 183.

HAB. *Fences*.—*Swartz*.

FL. ———?

A twining shrub: branches terete, glabrous. Leaves shortly petiolate, veined. Racemes terminal, axillary, compound: divisions opposite, subdivided: flowers shortly pedicelled, small, blue. Styles 3.—*Swartz*.

#### V. TETRAPTERIS.

The character of *Triopteris*, except that the carpels are expanded in 4 oblong wings, 2 superior, 2

inferior and smaller, and also producing from the dorsum 1-4 alæform or subulæform crests.—*De Cand.*

Petioles eglandulose.—*Name*, from *τετρα* four, and *πτερον* a wing.

1. *Tetrapteris citrifolia*. *Citron-leaved Tetrapteris*.

Leaves ovato-oblong acute glabrous, umbels axillary peduncled, the two inferior wings of the fruit half the length of the upper.

*Triopteris citrifolia*, *Gærtn.* II. 168. t. 116.—*Swartz*, *Fl. Ind. Occ.* 857.—*Tetrapteris inæqualis*, *Cav. diss.* t. 260.—*Tetrapteris citrifolia*, *De Cand. Prod.* I. 587.

*HAB.* In mountain woods. Between Halberstadt and Galloway House, Port-Royal mountains.

*FL.* June, July.

A shrub: branches long, trailing, ascending to a height by throwing themselves over neighbouring shrubs and trees, subterete, puberulous at their extremities. Leaves opposite, petiolate, ovato-oblong, rounded at the base, acute at the apex, entire, glabrous, membranaceous, nerved and veined, about 4 inches long and  $1\frac{1}{2}$  broad: petiole short, subterete, slightly channelled above, puberulous. Umbels axillary and subterminal, peduncled, shorter than the leaf, 4-flowered: peduncle compressed, pubescent, bearing a pair of small leaves a short distance below the leaf: pedicels subterete, thickened towards the flower, each furnished with a minute bractea at the insertion, (forming as it were a 4-leaved involucre for the umbel), and a pair, similar, a little above the insertion. Flowers numerous, showy, yellow. Calycine segments oblong, obtuse, incumbent; two of them uniglandulose, 3 of them biglandulose at the base. Petals clawed, roundish, slightly concave and slightly undulated towards the claw. Stamens 10: filaments short, subulate, united at the base: anthers incumbent. Ovaries 3, cohering, villous: styles 3: stigmata green. Carpels 3; the lower pair of wings half the length of the upper. Seeds solitary, subrotund, shining, red.

## VI. BANISTERIA.

Calyx 5-partite, externally at the base 8-10 glandulose. Petals clawed, subrotund. Stamens 10, with the filaments subulate and cohering at the base. Styles 3, frequently expanded at the apex, into leaflets. Carpels indehiscent, 3-1-seeded, subdistinct, finally separable, terminating in a simple membranaceous



wing, thickened on the upper side. Seed 1, pendulous. Cotyledons thick, unequal. Radicle superior, turned towards the hilum.—*De Cand.*

Trees or shrubs, generally climbing.—*Named*, by Dr Houston, in honour of the Rev. John Banister, a Botanist, who lost his life in Virginia, when engaged in collecting plants.

### 1. *Banisteria laurifolia.* *Bay-leaved Banisteria.*

Leaves ovato-lanceolate subacute sub-coriaceous glabrous, petioles eglandulose, racemes terminal panicle ferrugineo-tomentose, stigmata dimidiate.

*Acer scandens*, foliis laurinis, *Sloane*, II. 26.—*Banisteria laurifolia*, *Swartz*, *Obs.* 182.—*De Cand. Prod.* I. 589.

HAB. Common in thickets.

FL. From February to the end of May.

Stem shrubby, twining: branches loose, terete, scabrous, when young tomentose. Leaves opposite, petiolate, ovato-oblong, subacute, subcoriaceous, glabrous: petioles when young ferrugineo-tomentose, eglandulose. Racemes terminal, panicle. Peduncles ferrugineo-tomentose. Flowers shortly pedicelled, yellow. A small roundish concave ferrugineo-pubescent bractea at the base of each pedicel. Calycine segments oblong, obtuse. Petals clawed, with the limb roundish. Filaments cohering at the base. Ovary pubescent: styles 3, greenish: stigmata simple. Wings of the carpels about an inch in length.

### 2. *Banisteria splendens.* *Showy Banisteria.*

Leaves cordate apiculated orbiculato-oval sericeo-pubescent beneath, petioles biglandulose at the apex, racemes axillary subdichotomous corymbose.

*Acer scandens minus*, apocyni facie, folio subrotundo, *Sloane*, II. t. 162. f. 2.—*Banisteria foliis orbiculatis*, *Browne*, 231.—*B. heterophylla*, *Willd. Sp.* II. 742.—*B. fulgens*, *Lam. Dict.* I. 368.—*Cav. diss.* IX. 426. t. 253.—*B. splendens*, *De Cand. Prod.* I. 588.

HAB. Common on fences and in thickets. Liguanea, &c.

FL. March.

Fruticose: branches twining, terete, granulated, minutely puberulous. Leaves opposite, petiolated, oval, subcordate at the base, rounded but apiculated at the apex, entire, subglabrous above, appresso-puberulous beneath with stipitate hairs: petiole terete, minutely puberulous, furnished close to the base of the leaf with a pair of opposite sessile urceolate glandules. Racemes axillary, corymbose; peduncles dichotomous, or two

together, furnished with imperfectly formed leaves, terete, puberulous. Flowers showy, yellow, crowded at the extremity of the peduncle, on pedicels half an inch in length. Calyx 5-fid, with 4 of the divisions biglandulose, and the 5th naked. Petals clawed. Filaments subulate. Ovary 3-gonal: styles spreading, expanded at the apex.

## VII. HETEROPTERIS.

Character the same as that of *Banisteria*, except that the wing of the capsule is thickened from without, instead of from above.—*De Cand.*

*Name*, from *ἐτερον* in another place, and *πτερον* a wing.

1. \* *Heteropteris cærulea*. *Blue-flowered Heteropteris*.

Leaves ovate acute coriaceous glaucous shortly petiolate, branches tuberculated, racemes axillary, fruit slightly velvety at the base.

*Acer scandens foliis citri, flore cæruleo spicato, Plum. Spec. 18. ic. 14.*—*Banisteria cærulea, Lam. Dict. I. 367.*—*Cav. diss. IX. 421. t. 243.*—*Heteropteris cærulea, H. B. et Kunth, V. 163.*

HAB. Stated to be native of this Island and of St Domingo.  
FL. — ?

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## ORDER XLIII. SAPINDACEÆ.

Calycine sepals 4–5, either free or cohering at the base; æstivation imbricated. Petals usually of the same number as the sepals, occasionally one less, very seldom none; sometimes naked, sometimes villous or glandular in the middle, sometimes with an interior petaloid scale. Stamens double the number of the petals, inserted on a hypogynous glandular disk. Ovary subrotund. Style 1 or 3. Fruit drupaceous or capsular, 3-celled, or by abortion 1- or 2-celled. Seeds solitary in each cell, attached to the axis, exalbuminous: embryo with the radicle pointing towards

the base of the cell: cotyledons more or less curved upon the radicle, occasionally straight.—*De Cand. et Lindl.*

Trees or shrubs, erect or climbing. All of them natives of the warmer parts of the globe.

### I. CARDIOSPERMUM. *Heart-peas.*

Calycine sepals 4, with 2 of them small. Petals 4, internally appendiculated, with the appendices unequal. Glandules 2, hypogynous, between the petals and the stamens. Stamens 8. Styles 3. Carpels 3, inflated, membranaceous, connate at the axis, winged on the back, evalvular. Seeds globose, with a broad cordate hilum. Cotyledons thick, unequal.—*De Cand.*

Stems herbaceous or suffruticose, sub-scandent. Peduncles racemose at the apex, with the 2 inferior branchlets abortive and cirrhose.—*Name*, from καρδια the heart, and σπέρμα seed.

#### 1. *Cardiospermum villosum.* *Common Heart-pea.*

Branches villous, leaves biternate, leaflets incised crenato-serrated incano-villous especially beneath, glandules 2 hypogynous abbreviated rounded, capsules spherical hispidulous.

*Pisum vesicarium*, fructu nigro alba macula notato, *Sloane*, I. 238.—*Cardiospermum*, *Browne*, 213.—*C. halicacabum*, *Lunan*, *Hort. Jam.* I. 365.

HAB. Common on fences and in thickets, in dry hot situations.

FL. Spring.

Stem fruticose at the base: branches scandent, 7-anguloso-sulcated, subincano-villous. Leaves alternate, biternate: leaflets (the centre one the largest), petiolulated, ovate, apiculated, inciso-serrated with the lobes rounded, nerved and veined, incano-villous especially beneath: petiole terete, 3-lineated above. Racemes axillary, longer than the leaf, compound, with the two lower branchlets cirrhose: peduncle tetranguloso-sulcated, subincano-villous: pedicels about 3 lines in length, filiform, to the glass minutely puberulous. ♂ Flowers deciduous: the two outer sepals roundish, green, very minutely ciliated: 2 inner sepals much longer than the outer, subpetaloid, roundish, concave, glabrous. Petals 4, larger than the inner sepals, obovate, furnished at the base with a petaloid scale, induplicated with a

yellow glandulose thickening at the duplicature. Glandules 2, hypogynous, short, thick. Stamens 8; filaments monadelphous at the base, nearly as long as the petals. Rudiments of the pistil consisting of a small villous ovary, and short style, concealed in the centre of the stamens. ♀ Flowers persistent. Calyx and corolla as in the barren flowers. Stamens shorter than the styles; anthers ovate, white, apparently abortive. Ovary 3-gonal, 6-lineated, villous: styles 3, erect, shorter than the petals: stigmata obtuse. Fruit pedicelled, subglobose, inflated, sub-3-alate, 6-lineated, hispidulous, 3-celled: cells 1-seeded.

This species is nearly allied to *C. MOLLE*, but is distinguished from it by the leaves not being sharply serrato-incised, and by the hairs not being appressed. It is very different from *C. HALICACABUM*, with which it has hitherto been confounded. According to Barham the seeds are narcotic; bruised in water and applied externally, they relieve the pain in gout, and are useful in chronic affections of the joints; and mixed with sugar they may be given for cough. The decoction of the root is mucilaginous and somewhat nauseous, and has the reputation of being lithontriptic.

## 2. *Cardiospermum grandiflorum*. *Large-Flowered Heart-Pea*.

Stem frutescent at the base, petioles and leaves pubescent, leaves tritermately divided, glandules 2 hypogynous elongated linear, capsules acuminate very large tomentose.

*Swartz, Prod.* 64.—*Fl. Ind. Occ.* 698.

HAB. Common in thickets, especially on the lower hills.

FL. June—October.

Stem frutescent at the base, subscandent: branches angulose, pubescent. Leaves alternate, petiolate, tritermately: leaflets petiolulated, ovate, slightly acuminate at the base, very much so at the apex, deeply serrated with the teeth bluntish, nerved, pubescent: petioles subterete, striated, pubescent. Peduncles axillary, solitary, elongated, usually longer than the leaf, anguloso-striated, pubescent, bearing at the apex a compound raceme: branchlets about an inch in length, the 2 lower ones abortive and cirrhose, the others somewhat crowded and whorled, each furnished with a small lanceolate bractea at the insertion, bearing a number of pedicelled white flowers. Flowers polygamous. ♂ Flowers: deciduous. Calyx with the 2 outer sepals small, roundish: the 2 inner several times larger, oval, concave. Petals 4, subequal, obovate, rounded at the apex: the appendices petaloid,  $\frac{1}{2}$  the length of the petals, slightly incrassated at the apex and tipped with yellow, obliquely

traversed on the inner surface with a delicate ridge. Hypogynous glandules connected at the base, linear, slightly incurved. Stamens 8: filaments of nearly the same length as the petals, monadelphous at the base where they adhere to the hypogynous disk: anthers reniform, curved. Rudiments of the pistil consisting of a small villous ovary and short style, concealed in the centre of the groupe of filaments. ♂ Flowers: Calyx and corolla the same; but the hypogynous glandules shorter and broader than in the barren flowers. Stamens half the length of the petals, (of nearly the same length as the ovary), free at the base: anthers oblong, cordate at the base, apparently destitute of pollen. Ovary oval, 6-angular, pubescent: styles 3, erect rather longer than the petals, cohering towards the ovary: stigmata obtuse. Carpels 3, connate to form a capsule 2 inches in length, of a somewhat pyriform shape, inflated, acuminate, tomentulose: seeds globose, shining, black with a white heart-shaped hilum.

## II. SERJANIA.

Calyx 5-sepalled. Petals 4, appendiculated on the inner surface, with the place for a fifth petal vacant. Stamens 8. Carpels 3 (samaroid) longitudinally connected, 1-seeded at the apex, dilated beneath into a membranaceous wing.—*De Cand.*

Scandent shrubs, with leaves ternate-compound.

### 1. *Serjania equestris*. *Mountain Supple-jack*.

Leaves biternate, leaflets ovate retuse apiculated attenuated at the base crenato-serrated towards the apex glabrous with the upper surface shining, petioles naked, wings of the carpels oblong and rounded at the angles.

HAB. Common.

FL. October.

Stem shrubby, climbing to a considerable height on neighbouring shrubs and trees: branches long, virgate, 3-gonal, somewhat sulcated and puberulous toward their extremities. Leaves alternate, bi-ternate: leaflets about 2 inches long, ovate, retuse, apiculated, attenuated (the middle leaflet wedge-shaped) at the base, bluntly serrated for the terminal half, nerved, shining on the upper surface, glabrous except a minute villous tuft in the axils of the nerves beneath, thin, membranaceous: common and partial petioles naked, 3-gonal, bisulcated above. Tendrils axillary, bifid. Racemes axillary and terminal, solitary, longer than the leaf, divaricating, compound,



many-flowered: common peduncle 3-gonal, minutely puberulous: branchlets an inch or more in length, with a small lanceolate bractea at the insertion of each, bearing about 10 pedicelled white flowers: pedicels short, puberulous, furnished at the insertion with a minute ovate acute bractea. Flowers polygamous. Calycine sepals 5; the 2 outer small, roundish; the 3 inner three times larger than the outer, obovato-subrotund, with 2 of them cohering. Petals 4, of nearly the same size as the larger sepals, appendiculated on the inner surface; appendices petaloid,  $\frac{1}{2}$  the length of the petals, hooded from the margin being inflected, tipped with yellow, and glandulose at the apex, villosa-ciliated. Hypogynous glandules 4, minute, green. Stamens 8, inserted on the disk supporting the pistil; filaments subulate, unequal in length, pubescent: anthers small, oblong, yellow. Pistil, in the barren flowers, scarcely perceptible; in the fertile, ovary 3-gonal: style 3-fid, persistent. Carpels united to form a 3-winged capsule, cordate at the base, emarginate at the apex: wings thin, membranaceous, veined, to the glass puberulous: cell situated at the apex of the samara, internally villous. Seed oval, compressed.

## 2. *Serjania divaricata*. *Spreading Supple-jack*.

Leaves biternate, leaflets ovate acuminate retuse blunt slightly attenuated at the base subentire shining and glabrous above, pubescent and minutely punctulated beneath, panicles axillary, wings of the carpels dilatato-rounded.

*Paullinia divaricata*, Swartz, *Fl. Ind. Occ.* 696.—*S. divaricata*, *De Cand. Prod.* I. 603.

HAB. Common, Port-Royal mountains.

FL. February.

Stem woody, climbing to a great height: branches angulose and sulcated, and towards their extremities pubescent. Leaflets 4–5 inches long and about  $2\frac{1}{2}$  broad, ovate, acuminate with the apex retuse and blunt, slightly attenuated and the middle leaflet somewhat wedge-shaped at the base, entire with the exception of a few distant blunt teeth, shining and glabrous above, pubescent and punctulated with minute brown dots beneath, nervose, reticulato-venose, stiffish: petioles compressed, anguloso-sulcated: the central partial petiole elongated, subulate. Tendrils axillary, solitary, longer than the leaf, angulated, bifid. Panicle axillary, on a long foot stalk; divisions racemose, alternate, divaricating: common peduncle anguloso-sulcated, pubescent; its branches short, with a small lanceolate bractea at the insertion, bearing several pedicelled flowers; pedicels short with a minute bractea at the insertion. Calycine sepals and petals as in *S. equestris*. Filaments 8, subulate. Ovary 3-go-

nal: style 3-fid: stigmata simple. Capsule 3-winged: seeds ovate.

### III. PAULLINIA.

Calycine sepals 5, subunequal. Petals 4, interiorly appendiculated, with a vacant space for a fifth which is wanting. Stamens 8, subunequal. Capsule leathery, 3-celled, 3-valved. Seeds half covered with a membranaceous arillus.—*De Cand.*

Climbing shrubs, with compound leaves. *Named*, by Linnæus in honour of Simon Paulli, Professor of Botany at Copenhagen, author of *Botanicum Quadripartitum*, 1640; and *Flora Danica*, 1648.

#### 1. *Paullinia Jamaicensis*. *Common Supple-jack*.

Capsule pear-shaped, valves subacute, leaves biterminate, leaves ovate crenato-serrated towards the apex wedge-shaped towards the base, subglabrous, intermediate petiole marginate.

*P. sarmentosa*, *Browne*, 212.

HAB. Limestone districts.

FL. October.

A shrub, climbing, a few feet in height: branches long, unarmed, towards their extremities anguloso-sulcated and minutely puberulous or subglabrous. Leaves biternate: leaflets unequal, ovate or oblong, apiculated, coarsely and sparingly crenato-serrated towards the apex, entire and wedge-shaped towards the base, nerved, glabrous except the axils of the nerves beneath, membranaceous: common petiole terete: intermediate petiolule distinctly margined; lateral ones partially. Racemes terminal, compound: branches simple, but sending off, near the base, a simple tendril: flowers small, white, in clusters, pedicelled, polygamous. Calycine sepals subunequal. Capsule stipitate, pear-shaped, 3-celled, 3-lobed, when ripe of a red colour: valves obovate, subacute. Seeds solitary, size of a pea, semiglobose, black, half covered with a white arillus of a mealy texture: cotyledons curved and folded round the embryo; radicle turned towards the base of the seed.

The branches of this species, from their roughness and flexibility, are commonly employed as riding switches. Quantities of them are annually sent to Europe. The bark is usually removed, and to prevent their becoming brittle, it is recommended to rub them with oil. The seeds possess the property of intoxicating fish. It is said, that those of some species of *SERJANIA*

have a similar property. This species has usually been confounded with *P. CURASSAVICA*, from which it differs in several particulars.

#### IV. SAPINDUS.

Calycine sepals 4–5. Petals 4–5, internally glandulose or bearded. Stamens 8, with the filaments villous. Style 1: stigmata 3. Carpels 3, globose, fleshy, connate, 2 of them in general abortive: seeds spherical.—*De Cand.*

Trees without thorns. The *Name*, is an abbreviation of SAPO-INDICUS, *Indian Soap*, from the berries of one of the species being employed as a substitute for Soap.

##### 1. *Sapindus Saponaria. Soap-berry.*

Rachis of the leaves decurrent broadly winged, leaflets lanceolate very entire 4–5 paired, the terminal ones very much acuminate.

*Prunifera racemosa*, folio alato costa media membranulis utrinque exstantibus donata, *Sloane*, II. 131.—*Sapindus foliis oblongis*, *Browne*, 206.—*Nux Americana*, foliis alatis bifidis, *Comm. Hort.* I. t. 94.—*Sapindus saponaria*, *Linn. Sp.* 526.

HAB. Common on the South side of the Island. Hills above Liguanea.

FL. September, October.

A tree from 15 to 30 feet in height, branches erect, round, smooth, ash-coloured. Leaves alternate, pinnate, 4–5 paired: leaflets subsessile, 3–4 inches long and  $1\frac{1}{2}$  broad, oblongo-lanceolate, acuminate with the apex blunt, membranaceous, sub-glabrous above, velutino-pubescent beneath: common petiole winged. Panicle terminal; peduncle as well as the branches angulose, minutely velutino-tomentulose. Flowers small, white, numerous, crowded, about 3-together, shortly pedicelled. Sepals of the calyx 5, roundish, concave, the two outermost smaller. Petals 5, resembling an inner scale of the calyx, than whose sepals they are shorter, clawed, elliptic, fringed with hairs. An annular disk formed of yellow connate glandules between the stamens and the petals. Stamens 8, filaments subulate, spreading, villous with white hairs especially near the base; anthers didymous. Ovary small: styles 3, minute, short. Berry size of a cherry; seed black.

The fleshy covering of the seeds of this tree, and in a less degree the root, make a lather in water, and serve all the purposes of soap, being very generally employed by the lower classes in washing their coarse linens. It has been observed, how-

ever by Labat, that they are apt to burn and injure the texture of the cloth. The seeds are round, smooth, and black, about the size of a cherry, and were at one time imported into England for buttons to waistcoats. In the present day, they are tipt with gold, and strung as beads, or made into crosses, and are very ornamental. They appear to be possessed of medicinal properties. Bruised or pounded, and thrown into ponds of water, they intoxicate and kill any fish that may be there. Given to fowls, they are said to be a preventative against their getting a disease, which is very fatal to them in the West-Indies, called the *fowl-yaws*. A tincture, prepared by infusing the bruised berries in spirits, is often used as an embrocation in rheumatism. It has also been confidently stated, that the tincture or extract is a medicine of singular and specific virtue in Chlorosis. The timber of this tree is soft, and not durable.

## V. BLIGHIA.

Calyx 5-partite. Petals 5. Stamens 8. Style very short : stigmata 3. Carpels 3, connate, fleshy, dehiscent : seed solitary, placed on a large fleshy arillus.

*Named*, in honour of Captain Bligh, who first carried the Bread-fruit to the West-Indies.

### 1. *Blighia sapida*. *Akee*.

*Koenig, Ann. Bot.* II. 571.—*Akeesia, Tussac, Fl. Aut.* I. 66.  
HAB. Cultivated.

FL. After the rains in May.

This tree, a native of Africa, is now very common throughout the Island. It comes into bearing about Christmas, when it forms a beautiful object from the contrast of the red colour of the fruit, with which it is loaded, with the bright green of the leaves. The fruit is brought in great abundance to the Kingston market. The arillus, which supports the seed, is the part which is eaten. It is prepared by parboiling in water with salt, and afterwards stewing or frying with butter, or by simply boiling in soups. It is very wholesome, and from its soft rich flavour well deserves the appellation of the vegetable marrow.

## VI. SCHMIDELIA.

Flowers generally monoico-polygamous. Calyx 4-partite. Petals 4, bearded within at the middle of the disk. Stamens 8. Ovary didymous. Carpels 2, subconnate, berried, 1-seeded.—*De Cand.*



1. *Schmidelia Cominia*. *Shrubby Cominia*.

Leaves trifoliate, the middle leaflet petiolulated, the two lateral subpetiolulated, oblong acuminate slightly attenuated at the base serrated pubescent above villous beneath, racemes compound.

*Baccifera Indica trifolia*, fructu rotundo monopyreno, *Sloane*, II. t. 208. f. 1.—*Arborea foliis undulatis pinnato-ternatis, floribus minimis, racemis terminalibus*, *Browne*, 205.—*Allophyllus Cominia*, *Swartz*, *Prod.* 62.—*Schmidelia Cominia*, *Fl. Ind. Occ.* 667.—*Ornithorpe Cominia*, *Willd. Sp.* II. 323.

HAB. Common in the lower mountains.

FL. August, September.

A shrubby tree, about 15 feet in height. Branches long, somewhat erect, terete, pubescent towards their extremities. Leaves alternate; common petiole  $2\frac{1}{2}$  inches long, terete, pubescenti-villous; leaflets elliptico-lanceolate, acuminate, slightly attenuated at the base, serrated, pubescent above, villous beneath, penni-nerved, veined. Racemes axillary, solitary, compound; branches 2–4 inches long, straight, spreading, simple, spike-like. Flowers small, yellowish, numerous, shortly pedicelled, 3–4 together in clusters. Rachis roundish, villous: pedicels reflected. Hermaphrodite and male flowers on the same raceme. ♀ *Fl.* Calyx of 4 sepals; 2 of them smaller; roundish concave. Petals 4 smaller than the larger sepals, white, roundish, ciliated, pilose about their middle, each, at their base, with a minute yellow bilobed glandule. Ovaries 2, situated at the lower part of the flower, at the side opposite to where the petals are placed, greenish, pubescent: style erect, longer than the sepals, bifid at the apex; stigmata reflected. Stamens 8; filaments shorter than the petals: anthers evidently abortive, pale. Berry globose, size of a coriander seed, orange-coloured, solitary, 1-seeded, from one of the ovaries being abortive. Seed roundish. ♂ *Fl.* As in the hermaphrodite, except that the stamens are contiguous at their base, and are twice the length of the sepals; anthers cordate, yellow.

This is a plant deserving of notice, principally for the singular disposition of the different parts of the flower. There are some inaccuracies in the description of *Swartz*, which I have attempted to correct.

VII. CUPANIA. *Loblolly-wood*.

Calycine sepals 5. Petals 4, glabrous on the inner surface, hooded. Stamens 8. Style 3-fid. Capsule 3-celled, 3-valved, with the valves septiferous from



the middle ; cells 1-2-seeded : seeds erect, arillated.—  
*De Cand.*

Trees, with abruptly pinnated leaves, and the flowers frequently male from abortion.—*Named*, from Francisco Cupani, a Sicilian Monk, Author of several Botanical Treatises.

1. \* *Cupania glabra.* *Glabrous Loblolly-wood.*

Leaves 3-4-jugate, leaflets ovate obtuse crenated glabrous acuminate at the base.

*Cupania arborea*, foliis oblongis crenato-serratis distiche et alternatim sitis, racemis laxis propendentibus, *Browne*, 178.—*C. glabra*, *Swartz*, *Fl. Ind. Occ.* 659.

HAB. Mountains of Jamaica and Hispaniola, *Swartz*.

FL. Spring.

A shrubby tree, with the stem about 10 feet in height. Leaves pinnated : leaflets alternate, shortly petiolulated. Racemes axillary and terminal, compound ; divisions alternate, patulous ; flowers numerous, crowded, very shortly pedicelled, minute, white, polygamous. Hermaphrodite flowers not so numerous as the male. Calycine sepals 5, internally pubescent. Petals very shortly clawed, obtuse, hooded, ciliated. Disk 8-toothed. Filaments, in the male flowers, longer than the corolla. Ovary subtrigonal : style 3-fid : stigmata erect. Capsule shortly stipitate, subrotund, obtusely 3-gonal, 3-celled, subventricose, very glabrous : seeds solitary, arillated for more than half their length.—*Swartz*.

*Browne* states that this is a common tree in the lower hills. It is singular that I have not yet met with it.

2. *Cupania apetala.* *Apetalous Loblolly-wood.*

Apetalous, leaves 5-7 paired, leaflets sub-opposite oblong acute at the base rounded and subemarginate at the apex entire shining and glabrous above subpuberulous beneath.

HAB. Scott's pass, Hopewell Plantation ; road from Mount Henry to Ross's Valley, and that from Halberstadt to Galloway House, Port-Royal Mountains.

FL. June.

A tree, with the stem erect, 15-20 feet in height ; branches erect, brownish, angulose and compressed towards their extremities. Leaves opposite, pinnated, 5-7 paired : leaflets 3 inches long, sub-opposite, shortly petioluled, oblong, subacuminate with the apex obtuse and sub-emarginate, wedge-shaped at the base, entire, glabrous and shining above, minutely puberulous especially in the angles of the nerves beneath, nerved,

reticulato-venose: petiole about 6 inches long, 3-quetrous: petiolules very short, incrassated. Panicle axillary, much longer than the leaves; common peduncle angulose, sulcated, minutely puberulous; branches angulose. Flowers numerous, small, yellow, shortly pedicelled, arranged in clusters on the short branchlets of the panicle. Bractees minute. Flowers polygamous; on the same raceme. ♂ *Fl.* Calycine sepals 5, ovate, concave, pubescent. Petals 0. Stamens 8, inserted on a green fleshy 8-crenated disk: filaments 3 times the length of the calyx, horizontally spreading, pubescent. Rudiments of the ovary sub-rotund, villous. ♀ *Fl.* Calyx as in the barren flower. Petals 0. Stamens half the length of those of the barren flower, and with the anthers apparently imperfect, deciduous. Ovary on a short thick stipe, 3-gonal, villous: style length of the stamens, subulate, pubescent: stigmata 3, spreading. Capsule shortly stipitate, (stipe 2 lines in length), 3-gonal, 3-lobed, 3-celled, (1 or 2 of the cells not unfrequently imperfectly developed), of a red colour, bearing the persistent style: valves 3, coriaceous, septiferous down the middle, dehiscent: seeds solitary, oblong, black; arillus light orange-coloured; cotyledons slightly curved.

### VIII. HYPELATE.

Flowers by abortion polygamous. Calycine sepals 5. Petals 5, plane, glabrous internally. Stamens 8, free. Style 1, undivided: stigma trigonal, deflected. Drupe 1-celled, 1-seeded.—*De Cand.*

The *Name*, was employed by Pliny to designate a species of Laurel. It is derived from ὑπὴλατος *purgative*. It was given by Browne to the following species, I presume, from the leaves resembling those of the Laurel.

#### 1. \* *Hypelate trifoliata.* *Three-leaved Hypelate.*

*Browne*, 208.—*Swartz, Fl. Ind. Occ.* 653. t. 14.

HAB. Lower hills, of the limestone formation.

FL. August.

A shrubby tree: branches loose, fragile, ash-coloured. Leaves ternate; leaflets obovate, coriaceous, shining, very glabrous, impunctate; petioles slightly margined. Panicles axillary, erect, longer than the leaf, subcorymbose. Flowers small, white, polygamous, with those which are male, and those which are hermaphrodite on different racemes. Sepals ovate, concave, coloured. Petals rather smaller than the sepals, ciliated, deciduous. Disk fleshy, yellow. Filaments in the male flowers longer than the sepals. Pistil obscure in the male: in the hermaphrodite subrotund, globose. Drupe size of a pea, when ripe black, pulpy: nut oval, 1-seeded.—*Swartz.*

## IX. MELICOCCA.

Flowers frequently polygamous. Calyx 4-5 partite, persistent. Petals either 0, or 4-5, inserted on a hypogynous disk. Stamens 8. Ovary 2-3 celled, 2-3 seeded; style 1, sub-3-lobed. Drupe or berry corticose, by abortion in general 1-celled, 1-2-seeded: seeds gelatinoso-baccate.

Trees with leaves abruptly pinnated, and with flowers racemose, white — *Name*, from μέλι honey, and κοκκος a berry.

1. *Melicocca bijuga*. *Genip Tree*.

Leaves bijugate, rachis subulate, racemes with its divisions simple spike-shaped, flowers 4-petalled, drupe oblongo-spherical.

*Jacq. Amer.* 108. t. 72. — *Swartz, Obs.* 146. — *M. carpoodea*, *Juss. Mem. Mus.* III. 187. t. 4.

HAB. Common.

FL. April—June.

A tree, 30-40 feet in height, with spreading branches. Leaves abruptly pinnated: leaflets 2-paired, subopposite, subsessile, of a somewhat ovate shape, acuminate at both ends, glabrous, nervose: petiole (or rachis) slightly compressed, subulate (especially when the tree is young). Racemes terminal, compound, of about 6 simple branches, bearing a number of pedicelled whitish fragrant flowers in a spike-like manner. Male and hermaphrodite flowers on distinct trees. ♂ *Fl.* Calyx 4-partite nearly to the base; divisions somewhat oblong, obtuse, concave. Petals 4, larger than and alternating with the divisions of the calyx, obovate, rounded at the apex, ciliated, inserted on the edge of a depressed 4-sided hypogynous disk. Stamens 8, longer than the petals, with subulate filaments inserted on the depressed centre of the disk. ♀ *Fl.* Calyx and corolla as in the *Barren flowers*. Stamens shorter than the petals, inserted on the margin of the disk. Ovary compressed. Drupe size of a pigeon's egg, green: rind subfragile; pulp flesh-coloured, gelatinous, of a sweet subacid slightly astringent taste, adhering tenaciously to the seed: seeds 2, or by abortion 1.

This, though a very common tree, is not indigenous to the Island. Browne informs us that the first of them was brought from Surinam, by one Guaf of the Jewish nation. In Jacquin's time it was still rare in the Island. The *Genip* is a large and beautiful tree, affording an extensive and grateful shade. The leaves are annually shed, and the new ones are produced with

the flowers in Spring. The flowers diffuse their fragrance to a considerable distance, and attract swarms of bees and humming birds. The fruit is very much esteemed, especially by the natives of the country. The nuts, in the Caraccas, are roasted and used as a substitute for Chesnuts.

## X. DODONÆA.

Flowers in general (from abortion) polygamous or diœcious. Calyx 4-partite, deciduous. Petals 0. Stamens 8, with very short filaments, and oblong or linear anthers. Style filiform, distinct from the wings of the capsule, sub-3-fid at the apex. Capsule 2-3 valved, 2-3 celled, 2-3 winged.—*De Cand.*

Shrubs, with leaves oblong, and frequently viscoe.—*Named*, after Rambert Dodoens, Professor of Medicine, Author of *Fragum Historia*, 1552, and *Pemptades*, 1583.

### 1. *Dodonæa Jamaicensis.* *Common Dodonæa.*

Leaves lanceolate or lineari-lanceolate attenuated at the base rounded and apiculated at the apex sub-viscose, flowers shortly racemose.

*Aceri* f. *Paliuro affinis*, angusto oblongo ligustri folio, flore tetrapetalo herbaceo, *Sloane*, II. 27. t. 162. f. 3?—*Triopteris erecta fruticosa*, *Browne*, 191. t. 18. f. 1.—*D. angustifolia*. *Swartz, Obs.* 150.—*D. Jamaicensis*, *De Cand. Prod.* I. 616.

HAB. Common in the mountains, and moist marshy savannahs.

FL. February.

A shrub, 6-10 feet in height: branches slender, of a ferruginous colour, compressed towards their extremities, angulated, sub-viscose. Leaves alternate, very shortly petiolated, narrow lanceolate or lineari-lanceolate, attenuated towards the base, obtuse with a bluntish apicula at the apex, entire with the margin slightly revolute, glabrous, shining above, sub-viscose, stiffish, usually 4 inches long, and  $\frac{3}{4}$  of an inch broad. Racemes terminal, compound, short, of several obscure greenish-yellow flowers: pedicels filiform. ♂ *Fl.* Calycine sepals 4, sometimes unequal, oblong, obtuse. Filaments 8, very short: anthers large in proportion, oblong, incurved. The rudiments of the pistil in the centre. ♀ *Fl.* usually on the same individual. Calyx as in the male, but the sepals only 3. Anthers of the same size as in the former, but abortive. Ovary globose, 3-sided with the angles winged: style erect, length of the sepals, 3-fid at the apex: stigmata simple. Capsule with three membranaceous wings: seeds solitary, oblong, slightly compressed.



The figure of Sloane is incorrect as regards the leaf; and the pedicels are too long.

The leaves are not strictly viscid, but rather as if they had been smeared with a solution of Isinglass or Mucilage, and then allowed to dry.

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## ORDER XLIV. MELIACEÆ.

Calyceine sepals 4-5, more or less united to form a monophyllous calyx. Petals of the same number as, and alternating with the sepals, with the claw broad, frequently connivent or united; æstivation valvular. Stamens usually twice the number of the petals, rarely equal, or of a greater number: filaments united to form a tube, bearing the anthers sessile on the summit. Ovary single, supported upon an annular disk: style 1: stigmata more or less deeply divided into 4 or 5 lobes. Fruit berried, drupaceous or capsular, many-celled, frequently 1-celled from abortion; with the valves, when they are present, septiferous. Seeds albuminose or exalbuminose, with the dicotyledonous embryo varying in shape.

Trees or shrub, with leaves alternate, exstipulated, simple or compound, natives of Tropical countries. They are all more or less bitter to the taste, and many of the species prove tonic and febrifuge when administered internally.

### I. MELIA.

Calyx small, 5-fid. Petals 5, oblongo-linear, patent. Stamens 10, the filaments united into a tube, at the apex 20-toothed, antheriferous internally round the throat. Ovary sitting on a subelevated torus: style filiform: stigma capitate, 5-angular. Drupe ovate; nut 5-sulcate, 5-locular, with the locules one-seeded: albumen fleshy: cotyledons plane, leafy: radicle superior.—*De Cand.*

Trees with the leaves impari-pinnate or bipinnate.—*Named,*



from the foliage resembling that of the *Manna-Ash*, *μελισα*, from *μελι* *honey*.

1. *Melia sempervirens*. *Hoop-tree, or West-India Lilac*.

Leaves bipinnate, leaflets about nine in number incised slightly angulose shining, petiole roundish at the base.

*Swartz, Fl. Ind. Occ. II. 737.—Bot. Reg. t. 643.—M. Azedarach, var. β. Linn. Sp. 550.*

HAB. Common; especially in fences.

FL. Throughout the year.

A shrub, sometimes acquiring the port of a tree: branches erect, long, terete, glabrous. Leaves at the ends of the branches: leaflets ovato-lanceolate, acuminate, unequally serrated, nerved, veined, of a bright green. Panicles axillary, solitary, corymbose: flowers numerous, showy, blue mixed with purple and white, pedicelled. Calyx minute, pubescent. Petals linear-lanceolate, spreading, reflected. Tube of the filaments 10-striated, toothed at the apex, of a deep purple, hairy within: anthers oblong, yellow. Ovary conical, glabrous: style erect: stigma 5-lobed. Drupe subglobose, yellow: nut 5-sulcated.

This shrubby tree, although now very common, is probably, as it is not noticed by either Sloane or Browne, an introduced plant, and merely a variety of *M. AZEDARACH*, a native of the East Indies.

We are informed by Dr Ainslie that a sort of toddy may be obtained from young healthy trees of this species, as well as from those of *M. AZADIRACHTA*, and that it is prescribed as a stomachic by the Hindoo doctors.

The bark of this tree is bitter and astringent, but by no means disagreeable to the taste. We are informed by the Author just quoted, that it is regarded, by the native practitioners of India, amongst their most valuable tonics. They generally prescribe it in powder or decoction combined with some aromatic, as a substitute for Cinchona, in Fevers and chronic rheumatism. The bark of the root is said to be a powerful anthelmintic; and is much employed by the Javanese, and in the Mauritius, and the southern States of America. In an overdose it is said to be followed by stupor, dilatation of the pupils, difficulty of breathing, spasmodic twitchings, &c., symptoms similar to those produced by *SPIGELIA ANTHELMIA*. It is given in decoction, prepared by boiling four ounces of the fresh root in a quart of water, till it has acquired the colour of strong coffee: of this, a table-spoonful is taken every hour, till the worms come away. It acts on the tape-worm, as well as the

ascarides and the round worm. The dried berries are said to have a similar effect.

The pulp of the ripe fruit, mixed with lard, forms an ointment for Tenia. The ripe fruit also yields a valuable bitter fixed oil, which is administered internally for worms, and employed externally to foul ulcers, and as a liniment in rheumatic and neuralgic affections. There is a case of hysteria related in the Transactions of the Medical and Physical Society of Calcutta, (Vol. I. p. 123.) by G. Skipton, Esq., in which a decoction of the leaves of the *M. AZADIRACHTA* was given with the best effects. As the species we have been describing has nearly similar properties, a trial might be made of a similar preparation of its leaves.

It is mentioned in the third volume of the Transactions of the Medical Society of Calcutta, that Dr Piddington had obtained from the *M. AZADIRACHTA*, a bitter febrifuge principle, in the form of small white shining crystals, which he styles Azadirine. There is no doubt but that it also might be procured from the plant before us.

A gum may be obtained by making incisions in the bark. The branches being long and supple, it has been proposed to employ them in making hoops.

## II. TRICHILIA.

Calyx 4-5 toothed. Petals 4-5, ovate or suboblong. Stamens 8-10; filaments either subdistinct or closely united into a tube, antheriferous internally at the apex. Capsule 3-valved, 3-celled (rarely 2-valved, 2-celled), with the valves septiferous at their middle; cells 1-2 seeded. Seeds baccato-arillated, exalbuminous: embryo inverted: cotyledons 2, very thick.—*De Cand.*

Shrubby trees.—*Name*, from τριχία ternary, from the circumstance, that nearly all parts of the plant are produced in threes.

### 1. *Trichilia Sloanei*. *Sloane's Trichilia*.

Leaves impari-pinnate, leaflets 3-4-paired ovato-lanceolate or elliptic acuminate, racemes axillary towards the ends of the branches, filaments cohering into a tube for  $\frac{3}{4}$ ths of their length villous.

Pruno forte affinis arbor, folio alato, flore herbaceo pentapetalo racemoso, *Sloane*, II. 128. t. 220. f. 1.—*T. hirta*? *Swartz*, *Obs.* 171.—*De Cand. Prod.* I. 622.

HAB. Common.

FL. Towards the end and earlier months of the year.

A tree about 20 feet in height; branches ash-coloured, terete, towards their extremities slightly compressed, greenish, puberulous. Leaves situated principally at the ends of the branches; leaflets 3-4-paired, petiolulated, ovato-lanceolate, scarcely elliptic, acuminate with a blunt point, rounded and unequilateral at the base, entire, nerved with the axils of the nerves excavato-blistery and puberulous, otherwise glabrous, membranaceous: petiole sub-terete: petiolule a third of an inch in length. Racemes several, towards the ends of the branches, axillary, solitary, shorter than the leaf, paniced: peduncle compressed, minutely puberulous: branches alternate, dichotomously subdivided, at length dividing into 3 pedicels: pedicels about the 4th of an inch, terete, pubescent, 1-flowered: flowers yellowish, fragrant. Bracteas oblong, one at each of the divisions of the peduncle, deciduous; bracteoles a pair, small, ovate, opposite, below the middle of the two lateral pedicels, the centre one being naked. Calyx small, puberulous, 4-5-fid; teeth erect, bluntish. Petals 4-5, oblong, puberulous, spreading. Stamens 8-10: filaments cohering for  $\frac{5}{8}$ ths of their length to form a tube, 4-5-agonal, pubescent, ciliated: anthers yellow, oblong, acute, with the apex incurved. Disk amber-coloured, puberulous, 4-5-lobed. Ovary seated on the disk, green, conical, pubescent: style short; stigma capitate, acute, yellow. Fruit size of a cherry, greenish, velutino-tomentose, globose, 3-valved, 3-celled; usually with only 2 of the cells perfecting the seed: seed solitary, hemispherical, blackish: arillus scarlet.

This is, I have no doubt, the *T. HIRTA* of Swartz and De Candolle. The name, however, appeared to me to be very inapplicable, as even according to the specific character of the latter Botanist, no part of the plant is particularized as being remarkable for its hairiness. Specimens found in the neighbourhood of Kingston were 8-androus: those collected in the mountains were 10-androus. I may here mention that the filaments only slightly cohere, and that they are easily separated.

## 2. *Trichilia spondioides*. *Plum-leaved Trichilia*.

Leaves impari-pinnate, leaflets 7-10 paired ovato-lanceolate, when old glabrous, when young puberulous along the under surface of the nerves and near the margin, racemes axillary, filaments subdistinct.

*Evonymus caudice non ramoso, folio alato, fructu rotundo tripyreno*, *Sloane*, II. 103. t. 210. f. 2 and 3.—*Trichilia spondioides*, *Swartz*, *Fl. Ind. Occ.* 730.—*Jacq. H. Schænbr.* I. t. 102.

HAB. Common every where, especially in the lower mountains.

FL. Summer.

A tree, 15 or 20 feet in height; stem, especially when young, erect, straight, either simple, or with a few branches at its extremity: branches straight, terete, glabrous. Leaves situated at the ends of the branchlets, usually a foot and a-half in length; leaflets subopposite, petiolulated, ovato-lanceolate, attenuato-acuminate, the old ones glabrous, the young glabrous above but puberulous beneath in the axils of the nerves and along the margin, 3 inches in length and rather more than 1 long. Racemes axillary-terminal, peduncle elongated, compressed, puberulous; branchlets short, partially subdivided; pedicels very short, jointed above the middle, furnished at that point with a pair of minute ovate acute bracteoles; flowers greenish yellow. Calyx minute, 5-partite, spreading. Petals 5, oblong, bluntish: filaments 10, broad, ciliated, and internally villous, externally glabrous: anthers small, ovate, yellow, erect. Ovary conical, amber-coloured at the base, hairy: style thick: stigma capitate, depressed. Capsule size of a small cherry, roundish, pubescent; seeds solitary, oblong, covered with a scarlet arillus.

This is a very common tree, possessed neither of beauty nor of any useful quality. In the French Islands it receives the name of *Mombin batard*, from its foliage resembling that of the *Hog-Plum*.

### 3. *Trichilia moschata*. *Common shrubby Muskwood*.

Leaves pinnated, leaflets alternate oblongo-lanceolate acuminate puberulous beneath, flowers decandrous.

HAB. Port-Royal mountains.

FL. February.

A shrubby tree: branches erect, terete, slightly papillose. Leaflets 9, alternate, petiolulated, oblongo-lanceolate, acuminate, entire, puberulous along the nerves beneath especially when young, about 5 inches long, and nearly 2 broad: common petiole slightly compressed. Cyme axillary: common peduncle minutely puberulous: pedicels short. Flowers yellowish-white. Calyx externally puberulous, 5-fid. Petals 5, slightly cohering at the base, externally (under the glass) puberulous. Stamens 10: filaments united: anthers ovato-lanceolate. Ovary globose, sericeo-pubescent: style short: stigma subcapitate, greenish.



β. *T. moschata*, var. *Octandra*. *Octandrous shrubby Muskwood*.

Leaves impari-pinnate, leaflets opposite oblongo-lanceolate subacuminate blunt undulated shining above, flowers sub-8-androus, capsule usually 2-seeded.

*Swartz, Fl. Ind. Occ.* 735.—*Andr. Bot. Rep.* t. 637.

HAB. Common in the mountains.

FL. May—October.

A shrubby tree, about 12 feet in height: branches erect, terete, slightly warty, glabrous. Leaves impari-pinnate: leaflets about 3-paired, opposite, petiolulated, oblongo-lanceolate, bluish, sometimes retuse, entire, slightly undulated, glabrous, shining above; petiole 6 inches in length. Cyme axillary, much shorter than the leaf: flowers shortly pedicelled, small, yellowish. Calyx minute, 4-toothed, minutely puberulous. Petals 4, ovate, obtuse, minutely puberulous externally. Filaments 8, distinct, bidentate at the apex, receiving the anthers between the teeth: anthers lineari-lanceolate. Ovary globular, green, glabrous, 3-celled; cells biovuled: style short: stigma capitate, 3-lobed. Capsule 3-valved: only 1 seed in two of the cells coming to perfection: arillus scarlet.

The resemblance between this and the preceding variety is so great, that though they may differ in some particulars, they are evidently mere varieties of the same species.

4. *Trichilia membranacea*. *Membranaceous-leaved Trichilia*.

Leaves pinnated, leaflets 10 in number alternate elliptico-lanceolate membranaceous glabrous, flowers sub-10-androus, cyme axillary.

HAB. Port-Royal mountains.

FL. February.

A shrubby tree, seldom more than 12 feet in height: branches spreading, terete, papilloso-scabrous. Leaves disposed in a pinnated manner, alternate, petiolulated, 4 inches long and  $1\frac{1}{2}$  broad, elliptico-lanceolate, acuminate at both ends, entire, pinninerved, glabrous, (when young puberulous beneath) membranaceous: common petiole subterete. Cyme axillary and subterminal: peduncle somewhat compressed, with a small deltoid bractea at each of its divisions. Calyx minute, irregularly 5-4 dentate. Petals 4-5, ovate. Stamens 10, or by abortion 8: filaments united into a tube, bearing the anthers internally, with teeth alternating. Ovary globose, sericeo-pubescent: style short: stigma capitate, subconical. Fruit globular, sericeo-pubescent, 3-sulcated: arillus deep purple.



5. *Trichilia glabra?* *Glabrous Trichilia.*

Leaves pinnated, leaflets alternate obovato-oblong rounded at the apex; glabrous with the outermost leaflet the largest, panicle terminal, flowers decandrous, filaments distinct.

*T. terminalis*, Jacq. *Amer.* 130?

HAB. Common, Liguanea, and Port-Royal mountains.

FL. April.

A tree, about 20 feet in height; branches long, subsimple, bearing the leaves and flowers at their extremities. Leaves alternately pinnated: leaflets about 10 in number, 3 inches long and 1 broad, (the outermost one usually the largest) oblong, unequilateral and attenuated at the base, more or less rounded at the apex, glabrous, shining above, paler beneath: petiolules short. Panicle terminal, longer than the leaves, diffusely branched, many-flowered: flowers of a pale yellow, in clusters. Peduncle compressed, angular, glabrous: pedicels very short. Calyx 5-fid; divisions subacute, ciliated. Petals 5, alternating with the divisions of the calyx, oblong, mucronate, longitudinally veined, spreading. Stamens 10, inserted on the disk, erect: filaments glabrous, but each increased internally at the base with a minute ovate villous appendage, which converge so as to conceal the ovary. Ovary minute, orbicular, depressed, crenulated at the margin.

## III. GUAREA.

Calyx minute, 4-fid. Petals 4, obtuse. Stamens 8; filaments bidentate at the apex, usually united among themselves, internally antheriferous. Stigma capitate. Capsule subglobose, 4-celled, 4-valved. Seeds solitary, arillated, exalbuminose.—*De Cand.*

Trees.—*Guara* is said to be the name of the *Muskwood* in Cuba.

1. *Guarea Swartzii.* *Muskwood Tree.*

Leaflets 2–4 paired lanceolato-ovate acuminate pinnately-nerved, lateral nerves 6–7 prominent beneath, racemes elongated.

*Lauro affinis arbor, foliis latioribus ex adverso sitis, lignum moschum olente*, Sloane, II. t. 170. f. 1.—*Eleutheria arborea*, Browne. 369. n. 7.—*Melia Guara*, Jacq. *Amer.* 126. t. 176.—*Guarea trichilioides*, Swartz, *Obs.* 146.

HAB. Common in Port-Royal mountains. Near St Catherine's Peak. St Thomas in the East.

FL. January, February.

A tree about twenty feet in height, with spreading branches. Leaflets opposite, petiolulated, smooth and shining above, puberulous beneath with the axils of the nerves wooly. Racemes 6–12 inches long, simple. Flowers shortly pedicelled, white fragrant, showy. Calyx small, 4-gonal, 4-fid. Petals ovato-lanceolate, obtuse, reflected. Tube of the stamens tetragonal, 8-toothed: anthers 8, inserted on the inside of the mouth of the tube. Ovary subrotund: style subulate, length of the tube of the stamens: stigma 4-gonal, depressed. Capsule size of a common plum, subglobose, of a russet colour, granulated, 4-valved, 4-celled: seeds solitary, with a scarlet arillus.

All parts of this tree, especially the bark, have a strong smell of musk, resembling that of the Alligator. From this circumstance the tree has received the name of the Alligator wood. There cannot be a doubt, that many parts of this tree are possessed of medical properties. The powdered bark, according to Dr Patrick Browne, is a good emetic; and Aublet states, that it produces violent purging and vomiting. The seeds are bitter, and have a warm musky taste. The wood is soft and of little value. It is sometimes employed for the staves and heading of sugar hogsheads. It is not adapted for rum punchcons, as it communicates its peculiar smell and a bitter taste to all spirituous liquors. Long observes that the old women in his time were in the habit of scenting their persons with the powdered bark of this tree, "*till they smelled like civet cats.*"

#### IV. CEDRELA. *Cedar.*

Calyx minute 5-toothed. Petals 5, broad at the base. Stamens 5, distinct, short; anthers oblong. Stigma capitate. Capsule woody, 5-celled, 5-valved: seeds  $\infty$ , compressed, imbricated, terminating in a membranaceous wing; albumen fleshy; embryo inverted; cotyledons plane leafy.

Leaves abruptly pinnated; pinnæ of many pairs; racemes paniced, generally axillary.—The name, is derived from CEDRUS, the cedar tree.

##### 1. *Cedrela odorata.* *West-Indian Cedar.*

Leaflets ovato-lanceolate entire sub-sessile of a similar colour on both sides.

*Pruno forte affinis arbor, maxima materie rubra lata odorata, Sloane, II. t. 220. f. 2.—Cedrela foliis pinnatis, Browne, 158. t. 10. f. 1.—C. odorata, Lam. Ill. t. 137.—Gærtn. de Fruct. II.*

HAB. Common on the lower mountains and in the plains.

FL. January—March.

A tree of rapid growth, and attaining a considerable height. The stem is round, and straight, especially where it has grown up in the forest, or surrounded by lofty trees in a sheltered situation. When it arrives at maturity, it is frequently four feet in diameter. Leaflets glabrous, penni-nerved, entire, deciduous, renewed at the commencement of the year with the period of flowering. Flowers pale-yellow, paniced; panicle drooping, opposite to the terminal leaf, subterminal: pedicels short, 1-flowered. Petals oblong, obtuse, puberulous, pubescent internally along a central longitudinal nerve, adhering at their middle to the stalk-like torus. Stamens 5, alternating with the petals, inserted along the side of the torus, where they are distinct, incrassated, yellow, glandulose. Ovary egg-shaped; stigma capitate, greenish. Capsule size of a plum, brownish.

De Candolle has fallen into an error in stating the inflorescence of the genus to be axillary. In the species before us it is decidedly subterminal.

This is one of the most valuable timber trees of the Island. The wood is of a reddish brown colour and has a pleasant smell. The leaves, bark, and flowers of the growing tree on the contrary give out, especially when young and after rains, a most disagreeable alliaceous odour, resembling that of assafoetida or garlic mixed with that of highly dried tobacco, and is felt very sensibly at a considerable distance. As a timber it is superior to pitch-pine, and is employed for similar purposes. It is particularly recommended for wainscoting rooms, and for chests and the inside work of clothes' presses and drawers, from the circumstance that vermin are not known to breed in it. This may be ascribed partly to the strong odour it exhales, and also to the bitter taste of the wood itself. Hence though it is occasionally employed to make rum butts, it always communicates, from the resin in the wood becoming dissolved, a peculiar bitter taste. It has been remarked that pigeons never take to, nor breed in a house made with this wood, probably from the strong smell it exhales. In like manner bees never build in a hive made of it. Meat also placed in a fresh cedar box, is said to acquire a peculiar taste.

One of the principal purposes for which the cedar is employed, is for splitting into shingles to cover houses. They are very durable and usually last for 15 years. They may be preserved much longer by giving them an occasional coat of oil paint, or a composition of lime, molasses, and salt. I may here remark, that trees grown in the forests are the best adapted for splitting into shingles; for in exposed situations the stem is

generally twisted, and the woody fibres are seldom straight, from the many branches, which are given off, passing through them.

This kind of cedar is seldom employed in ship-building. Sometimes, however, the trunk of a large tree is hollowed out into a canoe. This is easily done, as the wood is soft, and is cut out with great facility. The vessel itself is light and carries a great weight.

An amber-coloured Gum, resembling Gum Arabic in its properties, may be obtained in considerable quantities, by making incisions in the bark.

The cedar grows readily from seed or cuttings. A fresh post driven into the ground, readily takes root.

### V. SWIETENIA.

Calyx very small, 4-fid, deciduous. Petals 4 or 5. Stamens 8–10, with the filaments united into a tube, toothed at the apex, anther-bearing within. Style 1 : stigma capitate. Capsule egg-shaped, woody, 5-celled, many-seeded, 5-valved, dehiscent to their base with their edges opposite to the angles of the central pentagonal placenta : seeds imbricated downward, expanded into a wing : albumen fleshy : embryo straight : cotyledons plane, leafy.—*De Cand.*

Three species are referred to this Genus. They are trees with abruptly pinnated leaves. The bark of *S. FEBRIFUGA*, a native of the East Indies, is employed for the cure of intermittents. The genus was named by Jacquin, after Gerard L. B. Von Swieten, at whose persuasion the Empress Maria Teresa founded the Botanic Garden at Vienna.

#### 1. Swietenia Mahagoni. *Mahogany Tree.*

Leaves sub-4-jugate, leaflets ovato-lanceolate unequal acuminate at the apex, racemes axillary paniced.—*De Cand.*

*Cedrus Mahagoni*, *Mill. dict.*—*Cedrela*, *Browne*, 158.—*Swietenia Mahagoni*, *Jacq. Amer.* 127.—*De Cand. Prod.* I. 625.—*Hooker, Bot. Misc.* I. 21. *pl.* 16.

HAB. Common.

FL. After the May rains.

A lofty tree, of a graceful spreading port, with the stem attaining very large dimensions. Leaves alternate, of 3–5 pairs of leaflets; leaflets shortly petiolulated, distant, ovato-lanceolate, sub-acuminate, oblique, subcoriaceous, glabrous, very entire. Panicle axillary, 3–4 inches long, pendent, much branched,



glabrous, with the branches dichotomous, and at the base minutely bracteated. Flowers small, and greenish yellow. Calyx minute, 5-lobed, with the lobes rounded, minutely eroded. Petals oblongo-ovate, coriaceous. Tube of the stamens cylindrical, shorter than the petals, 10-toothed at the apex, internally a little below the apex bearing the anthers, which are small, ovato-rotund, yellow, alternating with the teeth of the tube. Disk encircling the base of the ovary, amber-coloured, short, denticulate. Ovary ovate, green: style cylindrical: stigma peltate. Capsule egg-shaped, size of an orange, rufous brown, minutely tuberculated, 5-celled, opening with 5 valves from the base, covered within with a distinct coriaceous plate. Receptacle central, large, 5-agonal, with the angles prominent, opposite, and meeting up with the edges of the valves, so as to form the septa of the cells: seeds attached to the apex of the receptacle, 15 in each cell, some of the outer and upper ones abortive, compressed, truncated at the base, expanded at the apex into a membranaceous oblong wing: albumen white, thin: radicle small.

The Mahogany delights in a light stony or marly soil, and is a common tree in our plains and lower hills. I have never met with it at an elevation above 3000 feet, nor very close to the sea-shore. It is at present much more scarce than it appears to have formerly been. It was from this Island that the supply for Europe was in former times principally obtained, and the Old Jamaica Mahogany is still considered superior to any that can now be procured from any other country. In 1753, according to Dr Browne, 521,300 feet in planks were shipped from this Island. It was formerly so plentiful as to be applied to the commonest purposes; such as planks, boards, shingles, &c. Now, however, although by no means scarce, we employ inferior woods on such occasions.

The beauty of the mahogany wood, is said to have been first discovered by a carpenter on board of Sir Walter Raleigh's vessel, at the time the ship was in harbour at Trinidad, in 1595. It is related that the first use to which mahogany was applied in England, was to make a candle box. It was brought into notice by Dr Gibbons, an eminent Physician in London, about the end of the 17th and beginning of the 18th century, who had received some planks from his brother, who commanded a vessel in the West India trade. Since that, it has been employed for every costly article of furniture, and occupies a place in the drawing rooms and dining halls of royalty itself, supplanting the oaken tables and panneling of the olden time. The most beautiful part of the wood is that obtained by sawing across the bottom of the stem and root. No other wood, not even the Yacca, can rival it in its infinitely diversified shades, now waved, now dotted, and now clouded; more varied than even the tortoise shell, to which it bears some resem-



blance. From its great hardness also, it takes the highest polish of which any wood is susceptible.

Although the Spaniards were, in all probability, the earliest to apply the wood to use, and although the French must be allowed to excel in producing the most highly finished and ornamental work from it, it is into England that the greater proportion of it is imported, and where it is most extensively employed. There is very little at present exported from this Island. The principal supply is from Honduras; but it is of a very inferior description, the grain being open, and the wood of a light and porous texture, and of a paler colour. Trees, indeed, which have grown in low alluvial situations, never give a rich and hard wood. Hence the Mahogany of St Domingo, and that of the Bahama Islands, are considered superior to what is at present exported from Jamaica.

Mahogany was formerly employed by the Spaniards in ship-building. Captain Franklin took with him, to the Arctic Sea, boats constructed in England of this wood; the planks being thin and light, and, in consequence, very portable. It is said to be almost indestructible by worms, or in water, and to be bullet-proof.

The Bark of the Mahogany is astringent, and has been recommended in decoction for diarrhoea. The proportions are, an ounce of the bruised bark to 2 pints of water, and to be boiled down to one half. The late Dr Wright remarked, that the bark of the boughs resembles Peruvian Bark in colour and taste, although with a somewhat more intense bitter. Infused in wine or spirits, it makes a very elegant tincture. It has also been given with success in powder, as a substitute for Peruvian Bark.

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#### ORDER XLV. AMPELIDEÆ.

Calyx small, with the margin subentire. Petals 4 or 5, inserted on the outside of the disk which surrounds the ovary. Stamens of the same number as the petals, and inserted before them on the disk. Ovary superior, 2-celled: style 1, very short: stigma simple. Berry round, often by abortion 1-celled. Seeds 4-5, or fewer by abortion, long: albumen hard: embryo erect: cotyledons lanceolate.

Scrambling or climbing shrubs, with tumid separable joints; flowers small, generally green; inflorescence racemose. They are all natives of the woods. The leaves are in general acid, and the fruit resembles the common grape.

## I. Cissus.

Calyx subentire. Petals 4. Stamens 4, opposite to the petals. Ovary 4-celled. Berry 1-4 seeded.

Cissus is the Greek name for *Ivy*, and has been applied to this genus from the circumstance of their climbing like that plant.

### 1. *Cissus sicyoides*. *Bastard Bryony*.

Leaves cordate ovate with the apex retuse glabrous thickish setaceo-serrated with the serratures appressed, branchlets terete.

*Bryonia alba geniculata*, baccis e viridi-purpurascens, *Sloane*, I. t. 144. f. 1.—*Cissus sicyoides*, *Lam. Ill.* t. 84. f. 1.

HAB. Common on Fences.

FL. After rains, throughout the year.

Stem frutescent, climbing: branches herbaceous towards their extremities, geniculated, sub-simple, smooth. Tendrils opposite to a leaf, bifurcated. Leaves alternate, petiolated, 3 or 4 inches in length, and about  $2\frac{1}{2}$  broad, somewhat succulent, of a dark green colour, very glabrous. Stipules membranaceous, rhomboid-falcate, produced below the insertion, deciduous. Racemes umbellated, of 5-rays, compound; peduncle and its branches angulose: pedicels short, 1-flowered. Bracteoles situated at the divisions of the peduncle, small, ovate, ciliated, marescent. Calyx bluntly 4-dentate. Petals 4, greenish yellow, oblong, concave, spreading, deciduous. Stamens 4, erect, inserted on the side of the disk, which is thus rendered sub-4-lobed. Ovary sub-globose: style erect; stigma cup-shaped. Berry size and colour of a black currant, shining, 1-seeded: seed spherical, conical at the apex.

This plant, in the wild state, ascends to a great height on trees and rocks, sending down bundles of long cord-like fibres, which take root when they reach the ground. These fibres, when ripe, are strong and durable, and I have observed them in old buildings, employed to bind down the rafters, in place of nails. Even when the stem is injured or divided, the upper portion still survives, and sends out a number of red cord-like fibres, forming together a mass not unfrequently as large as a man's head, some of which reach the surface of the soil, and take root.

It is cultivated about Kingston, and is trained to cover

arbours. It affords in this manner a close shade, and preserves its verdure in the driest seasons. It has received the very ill-applied designation of "*the Wild Yam*." It is a favourite among the Negroes as an application to sores, and is used as a substitute for adhesive plaster. The leaves have a pungent biting taste, resembling that of the *Arum* tribe. When bruised in water, they make a lather like soap.

2. \* *Cissus rugosa*. *Rugose Bastard Bryony*.

Leaves cordate trifid or quinquefid rugose, flowers racemose.—*Robinson*.

*Lunan's Hort. Jam.* II. 316.

HAB. Near Longville, Clarendon.

FL. —?

According to Robinson, the leaves are divided like the Vine, and the berries are as large as the common grape.

3. *Cissus acida*. *Sorrel-Vine*.

Leaves 3-foliate fleshy glabrous, leaflets obovate wedge-shaped and entire at the base, toothed at the apex.

*Irsiola, Browne*, 147.—*Bryonia alba, Sloane*, I. 233. t. 142. f. 6.—*Vitis trifoliata, Plum. Spec.* 18. t. 259. f. 5.—*Cissus acida, Swartz, Obs.* 49.—*Jacq. Schænb.* I. t. 33.

HAB. Common, climbing on rocky banks and loose stone walls.

FL. May—September.

Stem climbing, suffruticose, terete, glabrous, ash-coloured; flexuose, geniculated: branchlets short, green, compressed, striated. Leaflets wedge-shaped and attenuated into a petiolule and entire at the base, rounded and inciso-dentate at the apex, sub-succulent, with the veins obscure and vein-like: petiole semi-terete, channelled above. Stipules falciform, obtuse, deciduous. Tendrils, those of the stem opposite to the situation of a leaf which has dropt off, stiff: those of the branchlets opposite to the subterminal leaves, long, filiform. Peduncle opposite to the lower leaves of the branchlets, and longer than them, solitary, anguloso-striated, bearing an umbel: rays of the umbel 5, compressed, each bearing an umbellet of pedicelled greenish yellow flowers. Bracteoles at the divisions of the umbel and at the base of the pedicels, small, ovate. Calyx urceolate, obsoletely 4-toothed. Petals 4, oblong, thickened and slightly hooded internally at the apex, deciduous. Stamens 4, opposite to, and shorter than the petals, into the concavity of whose hood the anthers are received. Style short, conical at the base: stigma simple. Berry black, 1-seeded.

All parts of the plant have an acid taste.

4. *Cissus trifoliata*. *Three-leaved Cissus*.

Leaves 3-foliate glabrous, leaflets ovate acuminate at both ends setaceo-serrated submembranaceous, branches subulate.

*Bryonia alba triphylla maxima*, *Sloane*, I. 233. t. 144. f. 2.  
—*Irsiola triphylla scandens*, *Browne*, 147.—*Cissus trifoliata*,  
*Jacq. Amer.* 23. t. 182. f. 10.—*Swartz, Obs.* 50.

HAB. Common.

FL. July—September.

Stem woody at the base, climbing: branches herbaceous, swollen at the joints, angulose, subulate, glabrous. Leaflets petiolulated, ovate, acuminate at the apex which is sharp, sub-acuminate at the base, remotely and sparingly setaceo-serrated, submembranaceous, glabrous (except a few hairs in the axils of the nerves beneath), nervose, rugulose, reticulato-venose; the lateral leaflets unequilateral at the base: petiole angulated, channelled above. Stipules small, subrotundo-ovate, fleshy and swollen at the base. Tendrils opposite to a leaf, bifurcated, long, filiform. Peduncles opposite to a leaf (occupying the place of an absent tendril), or subterminal, dividing into 3 or more horizontally spreading branches, subdivided into two branchlets, each bearing an umbellule with a solitary pedicelled flower at the bifurcation. Flowers numerous, small, scarlet, shortly pedicelled. Bractees small, marescent, at the divisions of the peduncle. Calyx sub-entire. Petals scarlet, oblong, deciduous. Filaments erect; anthers yellow. Ovary depressed: style subulate: stigma simple obtuse. Berry size of a black currant, purple, shining: seed solitary, size and shape of a coriander seed.

*CISSUS ALATUS* of Jacquin appears to me to be the present species, and *C. TRIFOLIATA* of the same Author, to be our *C. ACIDA*.

II. *VITIS*. *Vine*.

Calyx sub-5-dentate. Petals 5 coherent at the apex, separating at the base like a calyptra and dropping off together. Stamens 5. Style 0. Berry 2-celled, 4-seeded, with the cells and seeds frequently abortive.

Leaves simple.—The common Grape, *VITIS VINIFERA* is very generally cultivated in the Island. It appears to thrive best in situations near the sea-shore, as it there produces the fruit in considerable abundance, and of a very good quality. In the mountains it appears to be chilled and blighted by too much moisture, and the berries are small, and ripen irregularly. It



has been proposed to obviate these defects by root-grafting on the native species.—*Name*, from *VITA life*, in allusion to the enlivening effects produced by the liquors prepared from the juice of the fruit.

### 1. *Vitis Caribæa. Water-withe.*

Leaves cordate acuminate angulated dentate slightly wooly above ferrugineo-lanuginose beneath.

*Vitis fructu minore rubro acerbo, Sloane, II. 104. t. 210. f. 4.*—*Vitis sylvestris, uvis minoribus nigris, Browne, 178.*—*V. Indica, Swartz, Obs. 95.*—*V. Caribæa, De Cand. Prod. I. 634.*

*HAB.* Common in thickets, especially where the soil is of a marly nature.

*FL.* May.

Stem woody: branches, angular, wooly, climbing. Leaves alternate, petiolate, cordate, roundish, acuminate, more or less angulated, 5-nerved at the base, with the reticulated divisions of the nerves terminating at the margin in prominent teeth, slightly lanuginose in white tufts above, and ferrugineo-lanuginose beneath: petiole angulated, wooly. Tendrils opposite to the leaves, compressed, wooly, bifid towards the extremity. Racemes a crowded thyse: peduncle elongated, opposite to a leaf, thus occupying what would have been the situation of a tendril, (and hence the tendrils are described by some Botanists as racemiferous), dichotomously divided: branches subdivided: terminal subdivisions bearing 10 or more shortly pedicelled small yellowish flowers. Calyx minutely 5-toothed. Petals 5, oblong, cohering at the apex. Stamens 5, inserted on the disk surrounding the base ovary. Ovary ovato-globose: style short: stigma obtuse. Berries round, purple, 4-seeded.

This plant is commonly known in Jamaica by the name of the *Water-withe*, from the circumstance, that, in the early part of the year, the stem and large branches yield, when divided, about a pint of a clear transparent fluid like water. It is tasteless, and, I believe, wholesome, and is of great service to travellers in the woods. By a wise and provident arrangement, this plant is found most plentifully in limestone districts, where the honeycomb rock prevails, and where few or no springs are to be found. The fruit is small, of the size of a currant, and has a rough acerb taste, recommending it for tarts. There is no doubt, but that it is susceptible of improvement by cultivation, since there is a great difference in quality of the fruit of different vines. I have never, however, observed it in our gardens; although the fruit, even in the wild state, ought to entitle it to a place.



## ORDER XLIX. OXALIDEÆ.

Calyx 5-sepalled or 5-partite. Petals 5, hypogynous, clawed, twisted during æstivation. Stamens 10, usually more or less monadelphous; 5 opposite to the petals, forming an inner series, and longer than the 5 which alternate with the petals: anthers 2-celled, innate. Ovary 5-angled and 5-celled: styles 5: stigmata capitate or somewhat bifid. Capsule ovate or oblong, sub-5-gonal, 5-celled, 5-10 valved, bursting longitudinally at the angles: seeds few, fixed to the axis, enclosed within a fleshy integument which curls back on the maturity of the fruit, and expels the seed elastically; albumen cartilagineo-carnose; embryo inverted, length of the albumen, with the cotyledons leafy, and the radicle long and pointing to the hilum.

Suffruticose or herbaceous plants. Natives of the hotter and temperate regions of the world. Their foliage is generally acid. Several of the species, such as *OXALIS ACETOSELLA* of Europe, contain oxalic acid. The *OXALIS CRENATA*, a native of Columbia, and which has been introduced into the Island, produces at the root, a number of tubers, resembling the potato.

I. *OXALIS*. *Sorrel*.

Calyx of 5 sepals, sepals free or coalescing at the base. Petals 6. Stamens 10, shortly monadelphous at the base; the 5 outer ones shorter. Styles 5, penicilliform or capitate at the apex. Capsule 5-agonal or cylindraceous.

Perennial, caulescent, stipitate, or stemless; leaves various, but never abruptly pinnated.—*Name*, from *οξύς* sharp.

1. *Oxalis Jamaicensis*. *Jamaica sorrel*.

Stem decumbent branched pubescent, peduncles axillary nearly the length of the leaf, generally 2-flowered, leaflets obcordate ciliated, petals entire, styles rather shorter than the inner stamens.

*Trifolium acetosum corniculatum luteum*, *Sloane, Cat.* 90.

HAB. A common weed.

FL. Throughout the year.

Root woody, brownish, smooth, dichotomously branched. Stem suffruticose, decumbent: branches long, trailing, filiform, coloured, pubescent. Leaves alternate, palmato-trifoliate; common petiole  $1\frac{1}{2}$  inch long, subterete, pubescent; leaflets subsessile, obcordate, glabrous, ciliated. Stipules none. Peduncle axillary, shorter than the petiole, puberulous, 2-flowered: flowers yellow, on a pedicel half an inch in length, each at the base with a linear ciliated bractea. Calycine sepals oblong, blunt, ciliated. Petals obovato-oblong, rounded at the apex, coherent at the base. Filaments and anthers as in the generic character. Styles 5, coherent. Capsule nearly an inch in length, cylindraceous, 5-sulcated, puberulous, bursting elastically at the angles, and projecting the seeds with a spring.

This is a very common weed in gardens, as also in coffee pieces, and provision grounds. I cannot reconcile it either to the *O. STRICTA*, or *O. CORNICULATA*, to both of which it has been referred. I have therefore been obliged to employ a new specific designation.

## 2. *Oxalis bipunctata*. *Bipunctated Wood-Sorrel*.

Scape umbelliferous 3-9 flowered, leaflets rotundato-obcordate glabrous and shining above puberulous and aurantio-maculated along the margin beneath, flowers shortly involucreated nodding, sepals with 2 orange-coloured spots at the apex.

*Graham, Bot. Mag.* 2781.—*O. violacea*, *De Cand. Prod.* I. 695 ?

HAB. A weed in Gardens, and in their vicinity; in the higher mountains.

FL. Throughout the year.

In addition to the specific character, I may add that the root is fibrous, and bears a number of imbricated bulbules, protected by ovato-lanceolate scales, the outermost of which are membranaceous, marescent; the inner scales fleshy and externally aurantio-striated. Leaflets with two arching nerves on each side of the mid-rib: petiole arising from the base of a bulbule, pubescent. Scapes arising solitary from the base of a bulbule in the axil of a petiole, rather longer than the leaf. Involucre short, sheathing, bidentate. Bracteas small, one at the base of each pedicel, aurantio-bimaculated at the apex. The spots at the apex of the sepals of an orange colour. Petals violet, delicately veined. Filaments hairy: five of them twice the length of the styles; and five of nearly the same length. Stigmata lobular, green, projecting between the longer filaments.

This is probably, as Sir W. Hooker observes, merely a variety of *O. VIOLACEA*. The *O. ELEGANS* and *LATIFOLIA* have, like this, the sepals spotted near the apex. In none of the species, except in this, have the spots, along the under surface of the margin of the leaflets, been observed. The flower is rather beautiful: but it is not a desirable acquisition to a garden, from the numerous bulbules it produces, and by means of which, when once established, it becomes a weed very difficult to eradicate.

## II. AVERRHOA.

Calyxine sepals 5, more or less cohering at the base. Petals 5. Stamens 5, submonadelphous at the base. Ovary angulated. Styles 5, persistent. Berry large, oblong, 5-sulcated, 5-celled. Seeds few in each locule, fixed to the axis.

Trees, natives of the East-Indies. *Named*, in honour of Averrôes, the most distinguished of the Arabian Philosophers, born, about the middle of the 12th century, at Cordova, a city of Andalusia.

### 1. Averrhoa Bilimbi. *Bilimbi* or *Bimbling*.

Calyx pubescent, petals with the limb ovali-oblong, stamens 10, fruit obtusely angled, seeds without an arillus.

*Cav. diss.* VII. t. 219.—*Rumph. Amb.* I. t. 36.—*De Cand. Prod.* I. 689.

HAB. Cultivated.

FL. May?

A tree seldom more than 15–20 feet in height. Leaves pinnated and sensitive to the touch. Flowers on short racemes of a red colour, situated along the stem and branches. Fruit containing a strong acid, which is probably the oxalic.

This tree is a native of the East, and was brought to Jamaica in the year 1793 in His Majesty's ship *Providence*. It is now to be met with in several parts of the Island. The fruit is said to form a pickle and preserve. The juice is employed to discharge iron moulds from clothes, and ink and other stains from furniture. Dr Mason Good recommends it, as an external application, in several varieties of cutaneous disease.

ORDER L. ZYGOPHYLLÆ.

Calycine sepals 5. Petals 5, alternate with the sepals, inserted on the receptacle. Stamens 10, distinct, hypogynous; 5 of them opposite to the sepals, and 5 to the petals. Ovary single, 5-celled: styles 5, united into 1, sometimes subdistinct at the apex. Capsule of 5 carpels, united among themselves and to a central axis, with the cells opening at the upper angle: seeds 1-∞; embryo straight; radicle superior; cotyledons leafy.

Herbaceous or shrubby; leaves stipulated at the base, frequently compound. Plants belonging to this order are more or less bitter, with a slight degree of acidity.

Tribulus. *Caltrops*.

Calyx of 5 deciduous sepals. Petals 5, patent. Stamens 10. Style ○. Carpels 5, fixed on an axis, triangular, indehiscent, hard, gibbous, spiny, transversely many- rarely one-celled. Seeds solitary in each cell.

Diffuse herbaceous plants. Flowers in general yellow. The generic designation is derived from *τρεῖς* three and *βολος* a point, in reference to the points of the carpels. The English name Caltrops is given to it, from the resemblance the fruit has to the machines which were formerly cast in the way to obstruct an enemy's cavalry.

1. Tribulus Cistoides. *Cistus-like Turkey-Blossom*.

Leaves 8-jugate, leaflets subequal silky beneath, peduncles length of the petiole.

*Jacq. Schoenbr.* 103.—*Pluk.* t. 67. f. 4.

HAB. Common in the Plain of Liguanea.

FL. After rains, during the warmer months.

Root perennial, woody. Stems several, 1-2 feet long, herbaceous, procumbent, round, hairy (a minute curled pubescence intermixed with the long hairs), reddish, jointed, sending off short horizontal branches. Leaves opposite, the one composed of 3-4 and the other of 6-8 pairs of leaflets; leaflets, shortly petiolulated, lineari-oblong, apiculate, delicately veined, glabrous above except along the mid-rib, sericeo-villous be-

neath. Stipules interpetiolar, deltoid, hairy: common petiole terete, silky. Peduncles axillary, about the length of the leaf, filiform, pubescent, 1-flowered. Flowers large, showy, yellow. Sepals  $\frac{1}{2}$  an inch in length, lanceolate, nerved, hairy. Petals broad towards the apex. Stamens 10; anthers oblong and much compressed, opening at the sides. Ovary ovate, setose with long white hairs; styles 5, short, united into 1; stigmata oblong, puberulo-papillose, yellow. Carpels 5, united into a globose 3-angular capsule, muricated with herbaceous spines or tubercles, hairy.

This is a very showy plant when in flower. It blossoms in great profusion after rains, so that the pastures about Kingston appear at times, from the neighbouring hills, as if covered with a bright yellow carpeting. Poultry are very fond of the flowers and seeds of this plant, and are said to acquire a superior flavour, and to become fat from feeding on them. This would appear to be an introduced plant, as it is rather limited in its locality, and has not been noticed by either Sloane or Browne.

## 2. *Tribulus decolor*. *Pale-flowered Turkey-Blossom*.

Leaves 3-4-jugate, the outer leaflets the largest, pedicels shorter than the leaf, carpels unarmed connected into a 10-ribbed, 10-seeded fruit.

*T. terrestris major*, flore maximo odorato, *Sloane*, I. 209. t. 132. f. 1.—*T. foliis senis pinnatis, floribus singularibus*, *Browne*, 220. t. 21. f. 3.—*T. maximus*, *Jacq. Ic. Rar.* t. 462. —*Lam. Ill.* t. 346. f. 2.

HAB. Common on the dry sandy situations.

FL. After rains.

Stems procumbent, subterete, somewhat succulent, slightly tinged with red, pubescent, somewhat swollen as if jointed at the situation of the leaves. Leaflets shortly petiolulated, ovato-oblong, apiculated, ciliated, pubescent beneath, nerveless with exception of the mid-rib: petiole sub-3-gonal, terminating in a subulate hairy apicula. Stipules a pair to each leaf, linearisubulate, ciliated. Peduncles axillary, solitary, at first shorter than the leaf, afterwards as the fruit ripens elongating, one-flowered. Flowers of a pale tawny buff colour, much smaller than those of the preceding species, slightly fragrant. Sepals subulate, thick, hairy, persistent. Fruit inversely pear-shaped, with an acuminate blunt beak; the lower portion 10-ribbed, (the ribs tuberculated), 10-seeded or fewer from some of the carpels having the seeds abortive.

I have changed the specific designation from *maximus*, as the flowers are by no means remarkable for their size, not being one third that of the *T. cistoides*. The capsule has some resemblance in form to that of the genus *THUNBERGIA*, but inverted.



## II. GUAIAECUM.

Calyx 5-partite, obtuse. Petals 5. Stamens 10, with filaments naked or subappendiculated. Style and stigma 1. Capsule substipitate, 5-celled, 5-angled, or from abortion 2-3 celled: seeds solitary, fixed to the axis, pendulous; albumen cartilaginous, rimulose; cotyledons thickish.—*De Cand.*

Trees, with the wood hard; leaves abruptly pinnated; peduncles axillary. *Name*, from *guaiac*, the appellation given to the tree by the natives of Guiana.

1. *Guaiacum officinale*. *Lignum-Vitæ tree*.

Leaves bijugate, leaflets obovate or oval obtuse.

*Pruno vel Evonymo affinis arbor, folio alato buxæ subrotundo, Sloane*, II. 133. t. 122. f. 3, 4, 5, 6.—*Guaiacum, Browne*, 225.—*G. officinale, Swartz, Obs.* 168.—*Gærtn. Fruct.* II. t. 113.—*Lam. Ill.* t. 342.

HAB. Plains on the South side of the Island, within 4 miles of the sea-shore.

FL. February.

A tree seldom more than 12 feet in height, of a rounded form: branches crowded, flexuose. Leaves opposite, bijugate: leaflets sessile, more or less obovate, rounded at the apex, nerved, glabrous: common petiole terete, channelled above. Peduncles axillary, 1-3 together, an inch in length, 1-flowered, filiform, minutely puberulous. Calycine sepals 5; two exterior, somewhat broader than the others; all of them obtuse and incano-tomentose. Petals 5, thrice the length of the sepals, oblong, bluntish, internally tomentulous. Filaments 10, twice the length of the sepals, grooved on the back: anthers bifid at the base, arcuate, yellow. Ovary and style compressed; stigma simple. Capsule obcordate, succulent, glabrous, yellow, 2-5-celled: seeds solitary, roundish, compressed.

The bark of this tree is thick and smooth, of a greyish colour. The wood is very hard, heavy, so as to sink in water, to the taste slightly bitter, inodorous (but when ignited giving out a slight fragrant smell). It takes a fine polish, and turns well. It is much used where solidity is an object, such as for ship-blocks, bed-rollers, pestles, &c. The centre of the wood is of an obscure green, and is the part which contains the larger proportion of resin: the outer layer or sap is more yellow, lighter, and contains very little of the resin.

The Gum-resin known by the name of the Gum Guaiacum, is procured from this tree. It is friable, semitransparent, of a brownish green, light, and diffuses in burning a somewhat

agreeable odour. It has a slight degree of bitterness, and produces a smarting or burning sensation in the fauces. It dissolves entirely in alcohol; and partially in water. Oxalic acid is produced by treating it with nitric acid.. It either flows spontaneously and concretes in tears, or is obtained by incisions. This latter operation is performed in May, and the juice, as it flows out, is concremented by the sun. It may also be procured by sawing the wood into billets, and boring a hole longitudinally through them, so that when one end of the billet is laid on the fire, the gum flows readily from the other, and is collected in a calabash or gourd. It may also be obtained by boiling the chips or raspings in salt water, when the gum will separate from the wood and rise to the surface.

The Spaniards first imported the Guaiacum wood from America into Europe in the year 1508. It had the reputation of being antisyphilitic, and the names *holy wood*, and *wood of life* were given to it, and it was in such esteem as to be sold at the rate of seven dollars the pound. It was in the height of its reputation in 1519, in consequence of the celebrated warrior Van Hutten having been cured by it, after eleven unsuccessful attempts to remove the symptoms he laboured under by means of mercury. This mineral was at that time not administered to the wealthy or great, but the use of it was confined to cases occurring among the commonalty. Gradually, however, in course of time, it came to supersede the Guaiacum, so that the latter has, in a great measure, fallen into disuse in the treatment of syphilis. It is still, however, considered as a diaphoretic and alterative. A decoction of the wood is prepared by boiling 8 ounces of the chips in two pints of water, till reduced to one-third; and to be taken in the course of the day. It has been found useful in rheumatism, diseases of the skin, leucorrhœa and scrofula. It is also employed as an adjuvant to mercury, and is said to moderate salivation produced by that medicine. An extract and a syrup may also be made from the wood, and an essential oil may be obtained by distillation.

The gum is used in powder or dissolved in alcohol or wine. When taken internally, it occasions a feeling of warmth in the stomach, increases the heat of the body, and quickens the circulation. Its action is stimulant and tonic, and, in large doses, purgative. It has principally been employed in chronic diseases, such as rheumatism and gout. Professor Dewees of Philadelphia has recommended the following tincture in cases of obstructed menstruation:—Take, gum Guaiacum, ʒviij: carbonate of soda, ʒij; pimento, ʒij; rectified spirits, lbij; mix and add to every 4 oz. of this tincture, volatile spirits, ʒi. Dose, a teaspoonful three times daily. The common tincture of gum Guaiacum has been employed, diluted with water, as a gargle to clean the mouth, strengthen the gums, relieve tooth-ach, &c.

## ORDER LI. RUTACEÆ.

Calycine sepals 3, 4, or 5. Petals rarely 0, generally of the same number as the sepals. Disk glandulose, fleshy. Stamens equal in number to the sepals or double or triple. Style dividing into stigmata corresponding in number to the carpels. Carpels 1-5, one-celled, dehiscent, 2-valved, cocculose internally from the endocarp changing into an elastic coccule contained within the external integument. Seeds fixed in an inverted position to the inner angle: embryo straight, compressed; radicle superior; cotyledons leafy.

Perennial herbaceous plants, shrubs or trees: almost all of them with glandules dispersed through the different organs and diffusing a strong odour. Leaves without stipules, alternate or opposite, simple or compound. This Order is rather extensive, comprehending nearly 300 species, natives of all countries, and to be found in every situation. Those which are inhabitants of northern latitudes, are in general herbaceous and endowed with fetid properties. Such is the *Rue tribe*, the species of which are said to be emmenagogue, anthelmintic, and sudorific. The *Bucku tribe*, peculiar to the Cape of Good-Hope and Australasia, are neat heath-like plants, with an aromatic odour, and have been employed of late in urinary complaints. The *Cusparia tribe* are principally natives of South America, and several of them, such as the Angostura bark, have the reputation of being possessed of febrifuge qualities. And lastly, the *Prickly yellow tribe*, common to South America and the West Indies, have been found to be acrid, stimulant, and tonic.

I. ZANTHOXYLUM. *Yellow-wood.*

Flowers hermaphrodite, or by abortion diœcious or monœcious. Calyx 3-9-lobed, more frequently 4-5 partite. Petals equal in number and alternating with the lobes of the calyx, rarely 0. Stamens generally equal in number and opposite to the lobes of the calyx. Carpels connate at the base or free, by abortion frequently reduced to a fewer number, so as to be in some species solitary; when mature 2-valved, 1-3-seeded: seed shining.

Shrubs or trees, frequently prickly. Leaves in general alternate and punctato-glandulose. *Name*, from ξαυθος *yellow*, and ξυλον *wood*. The timber of several trees belonging to this genus is very valuable. It is very durable, which may be ascribed to the oil with which it is impregnated.

1. *Zanthoxylum pterota*. *Saven-tree, or bastard Iron-wood.*

Aculeate leaves impari-pinnate, leaflets obovate crenated subemarginate, petiole slightly margined, prickles 2 stipulary uncinatè, flowers tetrandrous.

Lauro affinis, jasmini alato folio, costa media membranulis utrinque exstantibus alata, ligno duritie ferro vix cedens, *Sloane*, II. 25. t. 162. f. 1.—*Pterota* subspinosa, *Browne*, 146. t. 5. f. 1.—*Fagara pterota*, *Willd. Spec.* I. 666.—*Zanthoxylum pterota*, *De Cand. Prod.* I. 725.

HAB. Thickets. Port-Royal mountains, &c.

FL. May—July.

A shrubby tree, about 12 feet in height: branches prickly or unarmed. Leaves alternate, impari-pinnate: leaflets 4–5 paired, obovato-oblong, crenated, subemarginate, glabrous, pellucido-punctate, subsessile: petiole about 5 inches long, margined. Prickles, when present, stipulary, hooked. Panicle terminal and axillary, branched: peduncle of nearly the same length as the petiole, angulose. Flowers 4–6 together, subsessile, of a greenish yellow colour, odorous. A broad-ovate concave bractea at each division of the panicle. Calyx small, 4-partite. Petals 4, oblong, obtuse, concave. Stamens 4, longer than the petals: anthers yellow, with the pollen very abundant. Ovary single, ovate: style 1, conical: stigma simple. Mature fruit size of a black pepper, 1-celled, 2-valved, 1-seeded: seed glabrous, shining, of a brown colour.

The figure of the leaf given by Browne (tab. 5. f. 1.) is incorrect, and appears to be that of *WEINMANNIA GLABRA*. The ovaries, according to De Candolle, are two. I could only detect a slight groove along one side of the style.

2 \* *Zanthoxylum emarginatum*. *Emarginate-leaved Yellow-wood.*

Unarmed, leaves abruptly or impari-pinnate 2–3-jugate, leaflets ovate emarginate glabrous, racemes terminal, flowers triandrous.

Lauro affinis terebinthi folio alato, ligno odorato candido, *Sloane*, II. 24. t. 168. f. 4.—*Zanthoxylum emarginatum*, *Swartz, Fl. Ind. Occ.* 572.



HAB. Mountains.

FL. After the Autumnal rains.

A shrubby tree: branches terete, unarmed. Leaflets more commonly abruptly pinnated, entire, shining above, paler beneath, subcoriaceous. Racemes terminal, erect: flowers small, white. Calyx 5-partite. Petals 3. Filaments 3, very short. Ovary 3-lobed, 3-fid at the apex: style none: stigmata 3. Carpels 3 (but 2 of them are usually abortive): seed orbiculate, black, shining.—*Swartz*.

Swartz informs us that this tree is known in Jamaica by the name of *Lignum rorum*, being a corruption of *Ligno Rhodio*, which it resembles in giving out, when rubbed or heated, a strong odour. De Candolle describes the leaves as villous; but I have preferred following Swartz.

### 3. *Zanthoxylum aculeatum?* *Prickly Yellow-wood.*

Aculeate, leaves abruptly pinnated 3-jugate, leaflets oval sub-emarginate obsoletely crenated, glabrous, cyme terminal, flowers triandrous.

HAB. Below Berwick House, Port-Royal.

FL. October.

Arborescent, about 10 feet in height; branches erect, subsimple, spinose with black straight thorns. Leaves alternate, abruptly pinnated: leaflets crenulated, with a minute pellucid gland-like dot at the indentation; glabrous, shining above, subcoriaceous: petiole sub-terete, compressed, sulcated above: petiolule short. Cyme terminal: common peduncle elongated, angulated: flowers numerous, crowded, white, fragrant, very shortly pedicelled. Calyx minute 3-fid: divisions rounded. Petals 3, alternating with the lobes of the calyx, oval, concave. Stamens 3, alternating with the petals, and rather longer; filaments thickish, broad; anthers cordate, purple. Ovary 3-gonal; styles 2, short; stigmata simple.

A handsome shrub, with the cyme of flowers showy and fragrant, and deserving a place in the garden equally with the Mealy Guelder-rose, to which it bears some resemblance.

### 4. *Zanthoxylum sapinoïdes.* *Licca Tree.*

Aculeate, leaves abruptly pinnated 4-jugate, leaflets oblongo-lanceolate subemarginate very entire minutely punctulated on both sides, racemes axillary solitary shorter than the leaf; flowers 3-androus.

*Browne*, t. 20. f. 2.—*Sapindus spinosus*, *Linn. sp.* 526.

HAB. Dry hilly districts. Below Flamstead, Port-Royal mountains.

FL. November.



A shrub, about 9 feet in height : branches erect, terete, (towards their extremities sub-angulose), glabrous, armed with sharp straight black spiny prickles. Leaves abruptly pinnated : leaflets in 4 pairs, petiolulated, oblongo-lanceolate, acute at the base, obtuse and subemarginate at the apex, very entire, subcoriaceous, obscurely nerved, glabrous, shining above, minutely punctulated on both sides ; with the mid-rib of the leaflet occasionally armed with a spine-like prickle, : common petiole about 4 inches in length, sub-3-gonal, with the upper side plane and the edge raised (so as to be subulate ?) ; petiolule short, plane above. Racemes axillary, solitary, shorter than the leaf, subdivided ; divisions sub-simple : peduncle and its branches sub-3-gonal, glabrous ; pedicels very short, bearing a single small white flower, furnished at the base with a minute concave bracteole. Calyx minute, 3-partite ; segments roundish, acute. Petals 3, oval. Stamens 3, rather longer than the petals, spreading. Ovary globose, indistinctly 3-lobed : style simple, conical, short : stigma obtuse.

5. \* *Zanthoxylum spinosum*. *Thorny Yellow-wood*.

Spinose, leaves pinnated 8-10-jugate, leaflets sessile ovate acuminate subentire with the petioles and branches thorny, cymes terminal, flowers triandrous.

*Swartz, Fl. Ind. Occ.* 574.

HAB. Dry mountains.

FL. —?

A shrub, about 3 feet in height. Stem erect, thorny, branched. Thorns scattered, needle-shaped, an inch in length, standing out : those of the stem stronger and broader at the base. Leaflets shortly acuminate, emarginate, minutely crenulated, glabrous, shining, with the mid-rib thorny : petiole a foot in length, thorny. Cyme terminal : flowers crowded, small, white. Calyx 3-fid ; divisions ovate, acute. Petals 3. Filaments very short. Ovary 3-lobed, 3-fid : style 0 : stigmata 3, obtuse.—*Swartz*.

6. *Zanthoxylum acuminatum*. *Acuminated-leaved Yellow-wood*.

Unarmed, leaves abruptly-pinnate 2-3-4-jugate, leaflets elliptic acuminate obsoletely crenulated shining coriaceous, cymes terminal, flowers dioecious, ♂ 3-androus.

*Swartz, Fl. Ind. Occ.* 575.—*Swartz, Prod.* 33.

HAB. Near Tweedside House by the road side.

FL. February.

A shrubby tree, about 10-15 feet in height, with branches

erect, round, unarmed, smooth. Leaves alternate, pinnate; leaflets 2-3 paired, petiolulated, elliptic, slightly acuminate with a blunt point, acute at the base, punctulato-glandulose and crenulated along the margin, somewhat coriaceous, smooth, shining, nerveless, parallelly veined: petiole terete, channelled above. Panicle terminal, composed of a number of partial cymes. Common peduncle angulose; the branches alternate, rather long. Flowers diœcious, numerous, crowded, white, shortly pedicelled. Calyx minute; lobes 3, rounded. Petals 3, oval, obtuse, erect. ♂ *Fl.* Stamens 3, alternating with the petals, hypogynous: filaments subulate, somewhat longer than the petals: anthers ovate, yellow. Ovary small, conical, 3-gonal: style 1, very short: stigma subcapitate. ♀ *Fl.* Stamens 0. Ovary green, globose: style unilateral, arising from the base and incumbent over the ovary, length of the petals: stigma subcapitate, yellow. Fruit size of a black pepper, 1-celled, 1-seeded; seed black, shining, attached and pendulous from the apex of one of the valves.

The above description agrees very closely with that of *X. ACUMINATUM* by Swartz, with the exception, that the filaments are described by him as shorter than the petals, whereas, in the specimens before me, I found them one-half longer. De Candolle is incorrect, where he states the leaves to be impari-pinnate. When the capsule opens, the valves spread out, and from the seed, which resembles a black bead, retaining its connection to one of them, a very singular appearance is presented.

### 7. *Zanthoxylum Elephantiasis.* *Warty-panicled Yellow-wood.*

Unarmed, leaves impari-pinnated 5-7-jugate, leaflets lanceolate unequal at the base crenulated glabrous pellucido-punctate, panicle terminal with the peduncle and its branches verrucose, flowers polygamous pentandrous.

HAB. Near Mount Lebanon, and Moccha Wood, Port-Royal mountains.

FL. September.

Stem about 15-30 feet high, in the adult unarmed, of an ash colour, smooth: branches few, erect, at the extremities rimoso-angulated. Leaves at the ends of the branchlets, impari-pinnate; leaflets lanceolate, unequal at the base, blunt, the odd leaflet the largest, crenated, smooth, pellucido-punctulated: common petiole roundish, angulose, minutely glanduloso-punctate, glabrous: partial petiole short. Panicle terminal; branches spreading horizontally, alternate, subtetragonal, verrucose: branchlets dividing into two pedicels, each 1-flowered;

flowers rather large, polygamous, greenish-yellow. ♂ *Fl.* Calyx small; sepals 5, overlapping each other, roundish, blunt. Petals 5, oblong, blunt, glabrous. Stamens 5: filaments subulate, length of the petals, alternating with them: anthers rather large, oblong. ♀ *Fl.* with the calyx, petals, and stamens as in the male: carpella in the ovarian state 5, connate: style 0 (?): stigma blunt. Carpels (half developed) subglobose, at the apex 5-angulari-lobate: seeds minute, 3 in each cell?

Although I have stated the stem to be unarmed, it is possible that it may be furnished with prickles when young. I have given the specific name, from the resemblance of the bark of the stalk of the panicle, to the appearance of the skin of the feet in Elephantiasis.

### 8. *Zanthoxylum Clava Herculis.* *Prickly Yellow.*

Spinose, leaves pinnate 7-8-jugate, leaflets shortly petiolulated oblongo-lanceolate obtuse subentire shining above, hairy along the nerves beneath, panicle terminal, flowers pentandrous, carpels 5.

*Evonymo affinis arbor spinosa, folio alato, fructu sicco pentagono et pentacocco, ligno santali odore, Sloane, II. 28. t. 172.—Xanthoxylum, Browne, 189.*

HAB. Common. Port-Royal mountains, near Green Valley. FL. June.

A tree about 20 feet in height. Stem erect, armed with numerous strong thick spines or prickles: branches spreading, thorny, tomentose at their termination. Leaves situated principally at the ends of the branches, impari-pinnate, 7-8 paired; the leaflets very shortly petiolulated, for the most part opposite, oblongo-lanceolate, blunt, entire, not punctated except along the margin where there is a row of pedicelled dots giving the appearance, when held against the light, of obsolete crenatures, smooth shining above, hairy along the under surface of the nerves: common petiole occasionally prickly, roundish, plane above, pubescent; partial, very short. Panicle terminal, intermixed with leaves, branched, of numerous very caducous white flowers. Common peduncle angulose, striated, pubescent, much and irregularly branched; pedicels very short, filiform, several together. Calyx minute. Petals much larger, spreading, ovate. Stamens 5, longer than the petals, with which they alternate, spreading; filaments subulate: anthers heart-shaped. Ovary angular: stigmata 5, erect, appressed. Carpels 5, or by abortion fewer, distinct, puberulous, greenish.

The bark of the root of this tree, dried and reduced to a powder, is a common application to sores; and an infusion of it has the character of being antispasmodic. It is mentioned in

Lunan's Hortus, that the roots are covered with a light soft powdery substance of a yellow colour, and an agreeable scent : and it would appear that it is in it, that any medicinal powers, the roots may possess, reside. The expressed juice of the young roots is said to be a remedy for colic or dry bellyach. The bark of the tree which bears the same specific designation in North America, is considered as a powerful stimulant and sudorific, diuretic, and febrifuge. Barton mentions, that it is bitter to the taste, slightly odorous, colouring the saliva yellow, exciting salivation when chewed, and that it has been employed with success in rheumatism, paralysis of the tongue, &c. Dr Gillespie, a West-India practitioner, found the tincture to be a good febrifuge ; and Manguet states that the decoction is antisyphilitic. The analysis of Chevallier and Pelletan, gives a peculiar crystalline substance which they call *Zanthopicrite* ; a yellow colouring matter, which appears to be the source of the bitter taste of this bark ; another red colouring matter ; some salts. (Journal de Chimie Med. II. 314.) According to the authors of the Dictionnaire de Matière Medicale, however, there is some question, as to the species of *ZANTHOXYLUM* to which the bark analysed belonged.

This is a valuable timber-tree: the wood is yellow, and used in house-building.

### 9. *Zanthoxylum* Sumach. *West-India Sumach.*

Unarmed, leaves impari-pinnate 6-jugate, leaflets oblongo-lanceolate serrated, flowers polygamous apetalous, stamens 10.

HAB. St Andrew's and Port-Royal mountains.

FL. May, June.

A tree 20 feet in height ; branches spreading, lax, ferrugineo-tomentose at their extremities. Leaves impari-pinnate ; leaflets opposite, shortly petiolulated, oblong, lanceolate, sub-acuminate, broad at the base, serrated, penni-nerved, reticulato-venose, glabrous above, flavescent and villosa-tomentose along the mid-rib beneath, 4 inches long and 2 broad : common and partial petioles terete, ferrugineo-tomentose. Corymbs towards the ends of the branchlets, axillary, one-fourth shorter than the leaf, dichotomously branched : common flower-stalk compressed, ferrugineo-tomentose. Flowers numerous, crowded, pedicelled, small, yellow. ♂ *Fl.* Calyx of 5 sepals ; sepals ovate, acute, coriaceous, externally tomentose, internally with a ridge. Petals 0. Stamens 10, twice the length of the sepals. Filaments hairy at the base : anthers elliptic ; pollen plentiful. Ovaries minute, 5, ovate : styles 5 rostrate. ♀ *Fl.* Calyx and stamens as in the barren. Ovaries more distinct. Carpels 5, or by abortion fewer, generally only two distinct at



the base, rostrate at the apex with the beak incurved, roundish, slightly compressed, ferrugineo-hirsute: seed single, obovato-globose, mucronate at its lower end, with a slight depressed streak for receiving the setaceous funicle which is inserted at the rounded apex; episperm or integument very hard.

This is a very common tree in the higher mountains, and it is singular that it should have hitherto escaped the notice of Botanists. The wood is very soft and friable. It is commonly called the *Sumach*. The old leaves acquire a bright red colour previous to being shed.

## II. GALIPEA.

Calyx short, 5-toothed. Petals 5, united into a hypocrateriform corolla, or very much approximated, with a short pentagonal tube, and with the lobes patent and acute. Stamens 4-7, hypogynous, subadherent to the petals, unequal, sometimes all of them fertile, or 2 larger and antheriferous, and 2-5 shorter and sterile. Nectary cupuliform. Styles 5, united into one, constituting a 4-5-sulcated stigma. Carpels 5, or fewer from abortion, obtuse, cocculiform, sessile, with the endocarp separable. Seeds from abortion solitary: cotyledons large, corrugated, biauriculated. —*De Cand.*

Shrubs or trees: leaves alternate, simple, or plurifoliate.—*Name*, from a South-American appellation of one of the species.

### 1. *Galipea pentaphylla*. *Five-leaved Galipea*.

Leaves 5-3-foliate, leaflets oblong obtuse at both ends glabrous, panicle terminal, flowers pentandrous.

HAB. Road from St Michael's Chapel to Green Valley Works, and below Moccha Works, Port-Royal.

FL. July.

A tree, about 30 feet in height: branches terete, ash-coloured, glabrous. Leaves 5- rarely 3-foliate; leaflets petiolulated, oblong, rounded at both ends, entire, glabrous, pellucido-punctulated, nerved and veined: petiole elongated, terete: petiolules  $\frac{1}{2}$  an inch in length. Panicle terminal: common peduncle elongated, dividing into about 5 branches, each of which are subdivided. Flowers shortly pedicelled, very numerous, not large, of a yellowish colour. Sepals 5, unequal, rounded, minutely puberulous externally, imbricated. Petals 5, hypog-



nous, alternating with the sepals, oblong, obtuse, spreading, minutely puberulous externally, and glanduloso-punctulated. Stamens 5, alternating with the petals, inserted below the disk. Pistil in the centre of the disk: ovary minute: style erect: stigma obtuse. Disk annular, glanduloso-papillose. Carpels 5, united to form a turbinate capsule, size of that of *ABROMA AUGUSTA*, and resembling it in form, truncated and pentangular at the apex, muricated externally, bursting with a spring: endocarp distinct from the sarcocarp, 2-valved with the valves connected below the apex by a membranaceous band to which the seed is attached; seeds solitary, ovate, acuminate, compressed, of a brown colour: embryo at the apex of the seed.

As the *Angustura* bark is obtained from *G. CUSPARIA*, it is possible that this species also may be possessed of medicinal properties.

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## ORDER LII. SIMARUBEÆ.

Flowers hermaphrodite or unisexual. Calyx 4-5-partite, persistent. Petals 4-5, hypogynous. Stamens equal or double the number of the petals, inserted on the disk, free. Ovary with as many lobes as there are petals: style 1, filiform, enlarged at the base. Carpels of the same number as the petals, inserted by a joint on the axis, capsular, bivalved, internally dehiscent, 1-seeded. Seeds exalbuminous, pendulous: cotyledons thick: radicle short, superior.

Trees or shrubs, natives of the intertropical regions of the New World: bark very bitter; juice milky: leaves alternate, pinnated, exstipulated. A new bitter principle, called *Quassine*, has been detected by Dr Thomson, in several members of this Family, particularly *QUASSIA AMARA*, and *SIMARUBA OFFICINALIS*. It is of a brownish yellow colour, slightly transparent, and very soluble in water or alcohol. Dr A. Palmieri is stated, in the *Journal de Pharmacie*, xviii. 652. to have employed it with success for intermittent fever, in doses double those usually given of Quinine. *QUASSIA AMARA*, a shrub, native of Surinam, with beautiful crimson flowers, has been introduced, and is now common in our gardens.

## I. SIMARUBA.

Flowers by abortion monœcious diœcious or polygamous. Calyx small, 5-partite. Petals 5, a little larger than the calyx. Stamens 5–10, increased at the base by means of scales. Style partite at the apex.

*Name*, from the Indian designation of the tree in Cayenne.

1. *Simaruba excelsa*. *Lofty Bitter-wood*.

Flowers polygamous pentandrous paniced, stigma 3-fid, leaves impari-pinnate, leaflets opposite petiolulated.

*Quassia excelsa*, Swartz, *Fl. Ind. Occ.* 742.—*Q. polygama*, Lindsay, *Trans. Soc. Edin.* III. 205.—*Simaruba excelsa*, De Cand. *Prod.* I. 733.

HAB. Common on the plains and lower mountains.

FL. December.

A tree, 50–60 feet in height, with the branches spreading; the bark rimose, ash-coloured, internally albido-florescent with very tenaceous fibrils. Leaves alternate, impari-pinnate; leaflets opposite, shortly petioluled, oblong, acuminate, unequal at the base, blunt at the apex, venose, glabrous. Racemes towards the ends of the branchlets, axillary, very compound, paniced, subcorymbose, dichotomously branched, spreading, diffuse, many-flowered. Peduncle compressed, rufescenti-puberulous. Flowers small, pale, polygamous. Filaments of the male flower much larger than the petals: in the fertile, of the same length. In the male, merely the rudiments of the pistil: in the fertile, ovaries 3: style longer than the stamens, 3-quetrous, 3-fid. Drupes 3, but only one coming to perfection, size of a pea, black, shining, fixed on a hemispherical receptacle: nut solitary, globose, with the shell fragile.

A lofty spreading tree. It is an excellent timber; the wood is of a yellow colour, light and not very hard, takes a very fine polish, and is much used in flooring. Bed-posts and clothes-presses have been made of it, as no insect remains near the wood, on account of its bitter quality. It is from it that the *Quassia chips* of the shops is obtained, and not from the *QUASSIA AMARA*, which is only a shrub. It is intensely bitter to the taste, and as a medicine, is tonic and stomachic. It has been employed as a substitute for hops in brewing porter; but the bitter is not so agreeable as that of the hop, and remains longer on the palate. An infusion of the chips is made use of to poison flies.

2. *Simaruba officinalis*. *Officinal Bitter-wood*.

Flowers diœcious, male decandrous, stigmata 5-par-

tite, leaves abruptly pinnated, leaflets alternate shortly petiolulated pubescent beneath.

*Quassia Simaruba*, *Linn. Suppl.* 234 ?—*Lam. Ill.* t. 343. f. 2 ?—*Wright, Trans. Soc. Edin.* 11. 73.—*Simaruba amara*, *Aubl. Guian.* t. 331, 332 ?—*S. officinalis*, *De Cand. Prod.* I. 733.

HAB. Common, Port-Royal mountains.

FL. June.

A tree, about 20 feet in height: branches few, erect, terete, glabrous. Leaves towards the ends of the branches, abruptly pinnated: leaflets alternate, shortly petiolulated, oblong, glabrous and shining above, pubescent and paler beneath. Panicles axillary, subterminal: divisions short, few-flowered, each furnished with a leafy reversely-wedge-shaped bractea at the base: flowers shortly pedicelled, yellow, diœcious. ♂ Flowers, with the calyx small; divisions obtuse, minutely ciliated. Petals three times the length of the calyx, oblong, obtuse. Stamens length of the petals, augmented at the base with 10 ovate villous scales. Ovary imperfect, 5-lobuled, destitute of style or stigma. ♀ Flowers, on a distinct tree and smaller than the male. Calyx and corolla as in the male. Stamens 0. Ovaries 5, connected at the inner angle: style erect, single: stigmata 5, recurved. Fruit of 5, or by abortion, 4—3—2 drupaceous carpels, seated on the enlarged receptacle; carpels oblong, size of a damson, dark purple, smooth, shining, 1-seeded: seed ovato-oblong, compressed.

This is a very common tree in Port-Royal mountains. According to Linnæus and others, the male and female flowers are mixed together, on the same panicle. This is not the case with our Jamaica plant, which, as Dr Wright long ago remarked, is always diœcious. It is possible therefore that our Jamaica species may be distinct from the *QUASSIA SIMARUBA* of Linnæus, although it agrees with the figure of Aublet. I regret, that from my notes on this plant being mislaid, I cannot at present speak with confidence on the subject. The bark of the *QUASSIA SIMARUBA* of Linnæus, is in the lists of the different National Pharmacopœias, and is the only part of the plant used in medicine. It is inodorous, bitter, but not unpleasantly so, to the taste, and its virtues are extracted by both alcohol and water. It has been remarked, that the infusion is more bitter than the decoction. It acts as a tonic, and is used in dyspepsia, diarrhœa, chronic dysentery, and in all cases of impaired tone of the alimentary canal. Bichat made the remark, that in a full dose it acted as an emetic.

## ORDER LIII. OCHNACEÆ.

Calycine sepals 5, persistent, imbricated during æstivation. Petals hypogynous, in number 5, alternating with the sepals, or 10, caducous, patulous, imbricated during æstivation. Stamens 5, alternating with the petals, or 10, or indefinite, inserted on a hypogynous disk: filaments generally persistent: anthers 2-celled, innate, opening by pores. Carpels equal in number to the petals, placed on an enlarged tumid fleshy disk (called the *gynobase*): styles combined in one: ovules erect. Fruit of as many pieces as there were carpels, indehiscent, somewhat drupaceous, 1-seeded, articulated on the gynobase, which grows with their growth. Seeds exalbuminous: embryo straight: radicle short: cotyledons thick.

Tropical trees or shrubs, having a watery juice; leaves alternate, simple, with two stipules at the base; flowers usually in racemes, with the pedicels articulated at the middle or below it. They are possessed of no known remarkable properties.

## I. GOMPHIA.

Petals 5. Stamens 10; anthers subsessile, long, pyramidal, erect, dehiscent at the apex by means of a double pore. Locules of the pericarp 5.

Racemes from the ends of the branchlets bearing the leaves. *Name*, from γομφίος *molar tooth*, from γομφος *a nail*, because the molar teeth are inserted into their sockets like nails, and the drupes in the present genus are placed on the gynobase in a similar manner.

I. *Gomphia laurifolia*. *Laurel-leaved Gomphia*.

Leaves oblong acuminate at both ends with the apex obtuse very entire shining obscurely nerved.

*Swartz, Fl. Ind. Occ.* 741.—*De Cand. Ann. du Museum*, XVII. 419. t. 15.

HAB. Near Bridgehill; and road from Blackgrove to Pleasant-Hill, St. Andrew's.

FL. January.

A tree 15-20 feet in height: branches erect, terete, smooth. Leaves 4 inches long and 1 broad, oblong, slightly acuminate towards the base, distinctly so towards the apex which is obtuse, almost nerveless, shining, very smooth: petiole very short. Raceme terminal, corymbose, composed of numerous showy yellow flowers: divisions of the peduncle short, spreading: pedicels longer than the subdivisions of the peduncle, articulated. Sepals 5, ovate, greenish-yellow, concave, membranaceous. Petals 5, spreading, oblong, length of the sepals, narrow towards the base, rounded and somewhat crisped at the apex. Stamens 10, hypogynous; filaments short: anthers much longer than the filaments, linear, opening at the apex by means of two pores. Ovary of 5 green adherent projecting partile carpels: style short, thick, green: stigma simple. Gynobase subrotund, fleshy. Drupes 3-5, globose. *Swartz.*

This, when in flower, is a very beautiful tree.

2. \* *Gomphia nitida.* *Shining Gomphia.*

Leaves ovato-lanceolate acuminate serrated at the apex, sepals of the same size as the petals, berries ovate.

*Swartz, Fl. Ind. Occ. 740.—De Cand. Ann. Mus. XVII. t. 13.*

HAB. Woods in the interior of the Island.

FL. —?

A tree of moderate height: branches terete, glabrous. Leaves 2-3 inches in length, serrated, very glabrous: petiole short. Racemes terminal, compound, with the branches spreading: flowers numerous, pedicelled. Sepals ovate. Petals subrotund, scarcely longer than the sepals, shortly clawed, emarginate, yellow. Filaments none: anthers 10, subsessile, erect. Glandules 10, occupying the place of the filaments, surrounding the ovary? Ovary of 5 partile carpels: style 1: stigma simple. Receptacle subrotund, fleshy, bearing 2-5 globose 1-celled shining drupes, size of a large pea: nut solitary, globose.—*Swartz.*



## CALYCIFLORÆ.

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### ORDER LV. CELASTRINÆ.

CALYCINE sepals 4-5, with an imbricated æstivation. Petals of the same number as the sepals and alternate with them; very rarely none. Stamens of the same number as, and opposite to the sepals. Ovary free, surrounded by a subcarnose disk, 2-3-4-celled; cells 1- $\infty$ -seeded, with the ovules erect, rarely pendulous: style 1 or none: stigmata 2-4-fid. Pericarp capsular, berried, drupaceous, or samaroid, frequently deformed by the abortion of the cells. Seeds, in many, arillated: albumen O, or fleshy: embryo straight, axile, dicotyledonous.

Shrubs or trees; leaves frequently stipulated, alternate or opposite: flowers whitish or greenish. Scarcely any of the species possess any remarkable properties. The leaves of *Ilex PARAGUARIENSIS* are employed as a substitute for Tea, under the name of Paraguay Tea. I may here state that the *Myrti folio arbor, foliis latis subrotundis, flore albo racemoso*, of Sloane, II. 79. t. 193. f. 1, is *PRUNUS SPHÆROCARPA*, and not *CELASTRUS MYRTIFOLIUS*, as suggested by Roemer and Schultes.

#### I. STAPHYLEA.

Calyx 5-partite, protected at the base with an urceolate disk, with the lobes oblong, concave. Petals 5. Stamens 5. Ovary 2-3-lobed: styles 2-3, sometimes united together. Capsule 2-3 celled; cells membranaceous, dehiscent within; few-seeded, connected together either at the base or along the whole of their length. Seeds osseous, subglobose, truncated

at the hilum : albumen sparing, or none : cotyledons fleshy.

Leaves compound, impari-pinnate or 3-foliate, opposite, bistipulated at the base of the petiole and of the leaflet; flowers white, racemoso-paniculated. *Name*, from σταφυλή a *bunch*, in which manner its fructification is disposed.

1. *Staphylea occidentalis*. *West-India Staphylea*.

Leaves impari-pinnate, leaflets 5 sub-ovate acuminate at both ends crenato-serrated, flowers racemoso-panicled.

*Pruno forte affinis arbor, folio alato, flore herbaceo pentapetalo racemoso*, *Sloane*, II. t. 220. f. 1.—*Staphylea occidentalis*, *Swartz, Fl. Ind. Occ.* 566.—*S. corymbosa*, *De Cand. Prod.* II. 3.

HAB. Common, especially on lime-stone hills.

FL. June.

A tree about 20 feet in height : branchlets subterete, green, glabrous. Leaves opposite, impari-pinnated; leaflets petiolulated, subovate, occasionally approaching oblongo- or lanceolato-ovate, acuminate at both ends, with the apex obtuse, crenato-serrated, glabrous, shining above, membranaceous, nerved and veined; the terminal leaflet the largest: petiole and petiolules subterete. A pair of small, lanceolate, deciduous stipules to each leaf; a pair of minute, lanceolate, deciduous stipules to each pair of leaflets. Racemes terminal, panicled, longer than the leaf, erect, many-flowered: flowers white, odorous. Peduncle elongated, and, as also its divisions, (which are opposite, horizontally spreading, decussating) angular, striated: pedicels short 2-3 together, 1-flowered. Calyx 5-partite to the base; sepals unequal (the two innermost the largest); subrotundo-elliptic, concave, minutely ciliated. Petals 5, alternating with and rather smaller than the sepals, erect, clawed, somewhat obovate or clawed. Stamens 5: filaments subulate, compressed, erect, length of the petals: anthers cordate, yellow. Disk suburceolate, angulose, crenulated. Ovary 3-lobed: styles 3, cohering: stigmata simple. Capsule size of a large nutmeg, glabrous, 3-celled: seeds solitary.

Swartz appears to have considered the branchlet as a petiole, and hence he describes the leaves as duplicato-pinnated. He is manifestly in error in stating that the leaves are alternate, and serrated. In this conclusion I cannot be mistaken, as the plant, which I have described, is a very common tree.

## II. MYGINDA.

Calyx minute, 4-cleft. Petals 4. Stamens 4, alternate with and shorter than the petals. Ovary subrotund: style short or none: stigmata 4. Drupe ovate,

1-celled, 1-seeded: seed pendulous from the apex of the cell, albuminous.

Shrubs, natives of the West-India Islands and South America: branchlets tetragonal; leaves opposite, subcoriaceous; pedicels axillary, generally 3-chotomously divided; flowers minute. *Named*, by Jacquin in honour of Counsellor Mygind of Vienna, a patron of Botany.

1. \* *Myginda Rhacoma*. *Blunt-leaved Myginda*.

Leaves lanceolato-ovate bluntish crenated subpetiolate glabrous, peduncles dichotomous cymoso-umbellated, style short filiform 4-lobed at the apex.

Crossopetalum fruticosum tenue, foliis ovatis tenuissime denticulatis oppositis, racemis alaribus, *Browne*, 145. t. 16. f. 1.—*Myginda Rhacoma*, *Swartz*, *Fl. Ind. Occ.* 340.

HAB. Sandy places near the sea-shore. Near Old Harbour. FL. Summer.

A shrub, 2–3 feet in height, branched. Leaves small, half an inch in length, opposite, petiolate, stiff, scarcely nerved, glabrous: petiole very short. Racemules axillary, shorter than the leaves, 2–3-flowered: flowers minute, reddish. Calyx 4-fid, with the tube short. Corolla deeply 4-partite with the divisions fimbriated. Stamens 4, alternating with the petals. Ovary free, ovate: style length of the tube of the corolla: stigma 4-fid. Drupe small, size of a black pepper, scarlet: nut spherical.—*Swartz*.

I found this shrub very common in thickets, along the sea-shore, at Old-Harbour.

III. *Ilex*. *Holly*.

Calyx 4–5-toothed, persistent. Petals 4–5, hypogynous, alternate with the sepals, in some free, in other subcoalescing at the base to form a rotate corolla. Stamens 4–5, alternate with the petals, hypogynous. Ovary sessile, 4-celled, crowned with 4–5 subsessile stigmata, either distinct or united into 1. Berry 4–5-pyrene, with the nuclei oblong, umbilicated at the apex, and 1-seeded. Seed inverted; albumen fleshy; embryo nidulant at the apex.

Evergreen shrubs: leaves generally coriaceous: peduncles many-flowered. *Name*, according to Théis, from the Celtic word *ac sharp*.

1. *Ilex Occidentalis*. *West-India Holly*.

Leaves obovato-elliptic rounded and usually emar-

ginate at the apex coriaceous obscurely nerved very entire, stipules very minute deltoid acute, peduncles very short axillary 3-6-flowered.

I. obcordata, *Swartz, Fl. Ind. Occ.* 338.

HAB. Blue-mountain ridge. Orchard negro-grounds; Port-Royal.

FL. October—January.

A tree about 16 feet in height (according to Swartz a shrub): branches spreading, towards their extremities compressed, sulcated, green, glabrous. Leaves petiolate, nearly 2 inches long, and 1 broad, obovato-elliptic, rounded and most generally emarginate with a minute bluntish apicula in the indentation at the apex, acuminate at the base, very entire, coriaceous, obscurely nerved, veinless: petiole terete, slightly channelled. Stipules minute, deltoid, acute. Peduncles axillary, solitary, very short, 3-6-flowered: flowers small, white, pedicelled: pedicels one third of an inch in length, compressed, angular, bearing a pair of minute bracteas a little above the insertion. Calyx minute, 4-fid; divisions short, acute, persistent. Corolla rotate, 4-partite; divisions alternate with the sepals, oval, rounded at the apex, imbricated during æstivation. Stamens 4, opposite to the sepals, shorter than and adhering to the base of the corolla. Ovary globose, 4-lobed: stigma subsessile, 4-lobed, purple. Berry 4- or (by abortion) 1-pyrene.

#### IV. *Prinos*. *Winter-berry*.

Calyx 6-fid. Corolla rotate. Stamens 4-6. Berry 6-seeded.

Name, from *Prinos*, the Greek designation for the evergreen oak.

##### 1. *Prinos montanus*.

Leaves rotundo-ovate subacuminate at the base acuminate and subserrated towards the apex, shining above paler beneath, peduncles axillary 3-chotomously divided, branches 1-3-flowered.

*Swartz, Fl. Ind. Occ.* 622?

HAB. Higher mountains, common.

FL. July, August.

A shrubby tree, about 15 feet in height: branches erect, terete, scabrous, coloured: branchlets compressed, angulose, sulcated. Leaves alternate, petiolate, ovate, attenuated towards the base, acuminate, distantly serrated with the teeth distinct towards the apex, glabrous, shining above, paler and minutely punctulated beneath. Peduncle axillary, usually 3-partite; divisions 1-flowered, or about a line in length and 3-flowered:

flowers small, white, pedicelled. Calyx sometimes 5-, usually 6-, rarely 7-fid. Corolla rotate 5-6-7-partite. Filaments of the same number as the divisions of the calyx or corolla, minute, erect, alternating with the divisions of the corolla: anthers roundish, bifid at the base, brownish-purple. Ovary green, globular, glabrous: style short, thick: stigma subcapitate, depressed, with the margin revolute, sub-6-fid. Berry globose, small, size of a pea, purple, 6-locular, 6-seeded.

This is a somewhat handsome shrubby tree, from its dark shining evergreen leaves, and small white star-like flowers.

## 2. *Prinos lanceolatus*. *Lanceolate-leaved Prinos*.

Leaves ovato-lanceolate acuminate and subserrated towards the apex, wedge-shaped at the base shining above paler and minutely punctulated beneath, peduncle 3-chotomously branched with the divisions 1-3-flowered.

HAB. Hardware Hill Gap, St Andrew's.

FL. May.

A shrubby tree about 10 feet in height: branches numerous, fastigiate, angulose towards their extremities, glabrous. Leaves alternate, petiolate, ovato-lanceolate, subacute at the base, attenuato-acuminate and remotely serrated, with the teeth (to the glass) subulate, towards the apex; glabrous, shining above, minutely punctulated beneath, delicately nerved: petiole short. Peduncle axillary, subsolitary, longer than the petiole, sometimes 3-flowered, more usually 3-chotomously divided, with the middle division 1-flowered, and the lateral branches very short (about a line in length) and 3-flowered. Flowers small, white, on a filiform pedicel,  $\frac{1}{2}$  an inch or more in length. Calyx 6-toothed. Corolla 6-fid. The other parts of the flower, and also the fruit, as in the preceding species.

## VI. SCHÆFFERIA.

Flowers by abortion diœcious. Calyx 4-partite (or rather 4-sepalled), obtuse, persistent. Petals 4, alternating with the sepals. Stamens 4, alternating with the petals. Ovary 2-celled: style very short, or 0: stigmata 2. Berry dry, bipartite, rarely one-celled from abortion; cells one-seeded: seeds erect, with a fleshy somewhat oily albumen, and the embryo central straight plane.—*De Cand.*

Shrubs, with the leaves alternate, and flowers several toge-



ther, axillary, pedicelled, small.—*Named*, in honour of James Chr. Schæffer, of Ratisbon, author of several Botanical works.

This genus, I consider, as belonging to the present order, and not to the RHAMNEÆ, from the æstivation being imbricated, from the stamens being alternate with the petals and opposite to the sepals, and from the ovary being free.

### 1. *Schæfferia completa*. *Perfect-flowered Schæfferia*.

Leaves elliptic acuminate at both ends subentire as well as the branchlets glabrous, petals oblong obtuse, ovary glabrous.

*Buxi folio majore acuminato, arbor baccifera, fructu minore croceo dipyreno*, *Sloane*, 102. t. 209. f. 1.—*Schæfferia completa*. *Swartz*, *Fl. Ind. Occ.* I. 327. t. 7.—*S. frutescens*, *Jacq. Amer.* 259.—*De Cand. Prod.* II. 41.

HAB. Thickets.

FL. May, June; more rarely January.

A shrubby tree, about 10 feet in height: branches erect, terete, striatulated at their extremities, glabrous. Leaves alternate, petiolated, elliptic or broad-lanceolate, attenuated at the base, subacuminate with a small bluntish apicula, subentire (or obsoletely crenated), glabrous, shining above, greasy to the touch, nerved and veined: petiole terete, short. ♂ *Fl.* Pedicels axillary, 3–5 together, very short, not longer than 2 lines, 1-flowered. Calyx minute, 4-sepalled: sepals roundish, concave, imbricating. Petals 4, alternating with and much longer than the sepals, oblong, obtuse, concave. Stamens 4, erect, length of the petals, opposite to the sepals: anthers 2-celled, yellow. Ovary conical, yellow, abortive. ♀ *Fl.* Pedicels axillary, about 4 together, somewhat longer than the petiole: sepals as in the barren flower but persistent. Petals deciduous. Ovary subrotund, green, glabrous: style 0: stigmata 2-lobed; lobes expanded, slightly bifid. Berry subrotund, or oval, 2-celled, size of a small pea, when ripe scarlet: seeds one in each cell, hemispherical.

SCHÆFFERIA LATERIFLORA of Swartz is the DRYPETIS CROCEA of Modern Systems, and has been placed among the EUPHORBIACEÆ.

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## ORDER LVI. RHAMNEÆ.

Calyx with its tube adhering to the ovary, 4–5-cleft, with a valvate æstivation. Petals corresponding

in number, (very rarely  $\bigcirc$ ), alternating with the segments of the calyx, generally with the limb concave, Stamens corresponding in number and opposite to the petals. Disk fleshy. Ovary adhering either wholly, or partially, at the base as far as the middle to the calyx, 2-4-celled; cells 1-ovuled: style 1: stigmata 2-4. Fruit fleshy and indehiscent, or dry and separating in 3 divisions. Seeds erect; embryo almost as long as the seed.

Trees or shrubs, in general thorny: leaves simple, alternate, very seldom opposite, with minute stipules: flowers small, generally of a greenish colour. This order has a very great affinity to the CELASTRINÆ. It is distinguished by the sepals being valvate and not imbricated, by the stamens being opposite to the petals and not alternate, and by the ovary being more or less adherent.

Species belonging to this order are to be found in nearly every part of the world, with the exception of the Arctic zone. They however delight principally in the warmer latitudes. The berries of various species of RHAMNUS are violent purgatives. Those of *R. CATHARTICUS*, *Purging Buckthorn*, were much recommended by Dr Hamilton, and, though a drastic purgative, are frequently prescribed, in combination with other medicines, in cases of obstinate constipation or other disorders of the bowels in children. The berries of all of this genus yield, under the hands of the chemist, several beautiful dyes, such as green and yellow, of great value in manufactures. The fruit of the genus ZIZIPHUS is, as in the jujube and the lote, very wholesome and pleasant. An infusion of the twigs of *CEANOTHUS AMERICANUS*, *New Jersey Tea*, which is sometimes to be met with in our gardens, has been employed, on account of its astringency, to stop the discharge in gonorrhœa; and the root of the same plant is said to be possessed of antisyphilitic properties.

## I. GOUANIA.

Calyx turbinate, with the tube adnate for some distance to the ovary, and the limb 5-fid, persistent. Petals 5, hooded, alternate with the lobes of the calyx. Stamens nidulant under the petals. Style 3-partite. Fruit dry, 3-gonal or 3-alate, 3-locular. Seeds solitary in each locule; albumen fleshy; cotyledons leafy.—*De Cand.*

Scandent shrubs; leaves alternate, stipulaceous; branchlets terminating some in a tendril, others in a racemose peduncle.

Flowers, from abortion, frequently polygamous.—*Named*, after Antoine Gouan, Professor of Botany at Montpellier, in the 18th century.

### I. *Gouania Domingensis.* *Chaw-stick.*

Leaves ovate subcordate acuminate crenato-serrated subglabrous.

*Radix fruticosa lutea, glycyrrhizæ similis, dentibus mundificandis inserviens, Sloane, II. 185. t. 232. f. 2. 3.—Gouania glabra, Jacq. Am. t. 179. f. 40.—G. Domingensis, Swartz, Obs. 387.*

HAB. Common.

FL. August—October.

A scandent shrub: branches anguloso-striated, pubescent, trailing over neighbouring shrubs, supported by means of tendrils produced at the extremities of the lateral branchlets. Leaves alternate, ovate, subcordate, acuminate, crenato-serrated, parallelly and diagonally nerved, minutely ciliated and puberulous, membranaceous: petiole sub-3-gonal. Stipules lanceolato-attenuated, marescent, deciduous. Racemes axillary, (or rather at the end of a short axillary leafy branchlet), simple, many-flowered: peduncle 2–2½ inches long, terete, puberulous: flowers small, yellowish, shortly pedicelled, in clusters. Calyx 5-partite, externally puberulous; divisions ovate, acute. Petals 5, alternate with and of the same length as the divisions of the calyx, and inserted about its middle, spathulate, concave and hooded at the apex. Stamens 10, inserted with the petals; 5 of them barren, opposite to and much shorter than the divisions of the calyx, minute (so as only to be detected by the microscope), bifid at the apex: 5 of them fertile, opposite to and nidulant in the hood of the petals; filaments short; anthers roundish. Ovary subrotund: style, in the fertile flower, 3-partite: stigmata simple. Capsule at first subrotund, trigonal, crowned with the calyx; afterwards 3-winged, with the wings thick, obtuse: seeds oblong, black.

The peculiarity above noticed of the stamens, appears to have escaped former observers, and the character of the genus would in consequence require to be remodelled. The sterile stamens are very minute, and require the aid of a microscope to detect them.

This is a very agreeable bitter. It is used as a substitute for hops in the ginger-beer, and what are called the cool drinks of the country. The infusion has been employed in gonorrhœa and dropsy, and as a light grateful bitter, in cases of debility, to restore the tone of the stomach. In powder, it forms an excellent dentifrice; its aromatic bitter producing a healthy state of the gums, and the mucilage it contains working up by the brush into a kind of soap-like froth. A tincture also is prepared from it, and much recommended, diluted with water, as

a wash or gargle, in cases of salivation or disease of the gums. The principal use to which the Chaw-stick is applied, however, is as a substitute for the tooth-brush itself. For this purpose, the extremity of a piece of a branch, which is usually about the thickness of the little finger, is softened by chewing, and then rubbed against the teeth. In this manner a tooth-brush and, with it, a powder are obtained, equal, if not superior, to any in use in Europe.

### CEANOTHUS.

Calyx 5-fid, bell-shaped; the base under the fruit persistent and sub-adhering. Petals 5, small, with a long claw, hooded, seldom  $\bigcirc$ . Stamens 5, exserted, before the petals. Styles 2-3, united as far as the middle. Berry juiceless, 3- rarely 2- or 4-locular, with chartaceous cocules, 1-seeded, pervious at the base, bursting on the inner side: seeds ovate.

Trees or shrubs; leaves ovate.—*Name*, from  $\kappa\epsilon\alpha\nu\theta\omicron\varsigma$ , derived from  $\kappa\epsilon\omega$  to prick, the name of a prickly plant, noticed by Theophrastus.

#### 1. *Ceanothus sarcomphalus*. *Sea-side Buckthorn*.

Leaves ovate or oval glabrous very entire obtuse or emarginate, peduncles terminal or axillary shorter than the leaf racemoso-corymbose.

*Sarcomphalus*, *Brown, Jam.* 179.—*Rhamnus sarcomphalus*, *Linn. Amœn.* V. 395.—*Kunth, Nov. Gen. Am.* VII. 57.—*Poiret, Enc. Meth.* IV. 467.—*Ceanothus sarcomphalus*, *De Cand. Prod.* II. 30.

HAB. Common, between Kingston and Albion, on the Windward road. Near Hanson's Salt Pond.

FL. April.

About 15 feet in height: branches erect, terete; the bark brownish-black, and, to the touch, scabrous. Leaves alternate, shortly petiolate, glabrous, membranaceous, slightly emarginate. Panicle axillary or terminal, cymose. Flowers small, greenish yellow, very shortly pedicelled. Peduncles and pedicels minutely puberulous. Calycine segments acute. Petals scarcely broader than the filaments which lie in their embrace. Disk fleshy, surrounding the ovary. Style 2-fid. Berry rounded, bilocular: seeds solitary, hemispherical.

#### 2. *Ceanothus sphærocarpus*. *Round-fruited Jamaica Buckthorn*.

Leaves oblong acuminate serrated glabrous, pedun-



cles axillary subterminal scarcely the length of the petiole racemoso-umbellated, fruit pellucid spherical, seeds trigonal.

*Rhamnus sphærospermus*, *Swartz, Fl. Ind. Occ.* 499.—*Roemer et Schultes*, V. 289.—*Ceanothus sphærocarpus*, *De Cand. Prod.* II. 30.

HAB. Port-Royal mountains.

FL. May.

A tree, about 15 feet in height; branches erect, with the bark ash-coloured and wrinkled, bearing the leaves crowded at their extremities. Leaves petiolated, oblong, acuminate, serrated, glabrous, except along the nerves, where there is a slight pubescence, penni-nerved, veined. Flowers small, obscure, greenish, sub-terminal, axillary, sub-umbellated: common peduncle short, compressed. Pedicels very short, with minute acuminate scariose bractæas at the base. Calyx externally minutely puberulous, 5-fid; divisions acute, ovate, fleshy, deciduous. Petals yellowish-white, small,  $\frac{1}{2}$  the length of the calycine lobes, sinuato-emarginate (with the stamens lying between the lobes). Stamens 5 alternating with the divisions of the calyx and of nearly the same length, inserted into the line marking where the persistent portion of the calyx unites with the deciduous sepals. Ovary superior, conical: style 3-fid: stigmata obtuse. Berry spherical, 3-sulcate at the apex, size of a small black pepper, sitting on the persistent portion of the calyx, pellucid, pale green, 1- or 3-seeded. Seeds oblong, 3-gonal.

### 3. *Ceanothus reclinatus*. *Pendulous-branched Jamaica Buckthorn*.

Leaves elliptic acuminate entire subglabrous, branches flexile pendulous, flowers axillary aggregatocorymbose, pedicels and the calyx externally puberulous.

*Rhamnus arborescens major*, *Browne*, 172. t. 29. f. 2.—*Rhamnus ellipticus*, *Ait. Hort. Kew.* I. 265.—*Roemer et Schultes*, V. 288.—*Ceanothus reclinatus*, *De Cand. Prod.* II. 31.

HAB. Port-Royal mountains. Near Half-way Tree.

FL. July—November.

A tree of moderate height: branches spreading, flexile, pendulous, of a blackish colour, albido-papillose, angulose towards their extremities. Leaves alternate, petiolate, elliptic, subacute at the base, acuminate with the apex obtuse, entire, subglabrous (a minute pubescence beneath, only to be detected by the microscope), nerved, veined, membranaceous: petiole terete, channelled above. Peduncles axillary, solitary, not half the length of the petiole, bearing several small yellow shortly pedicelled



flowers. Calyx externally puberulous, 5-fid for half the length; divisions ovate, acute, with a ridge running on the inner surface of each from the apex nearly to the base; after flowering circumscribed at the base. Petals alternating with the divisions of the calyx, and rather shorter spathulate, oblong, concave. Stamens 5, concealed in the petals, of the same length as the divisions of the calyx; filaments subulate, received at the base into indentations on the disk: anthers oval. Disk pentagonal. Styles 3: stigmata simple. Fruit placed on the persistent base of the calyx, size of an English pea, spherical, 3-sulcate at the apex, 3-celled: seeds solitary, oval, compresso-3-gonal, of a shining brown colour.

4. *Ceanothus colubrinus*. *West-India Snake-wood*.

Leaves ovate subacuminate entire ferruginéo-villous beneath, as also the branchlets and flowers, flowers axillary corymboso-aggregated, style 3-gonal.

*Rhamnus arboreus*, *Browne*, 176.—*R. colubrinus*, *Jacq. Amer.* 74. No. 2.—*Roemer et Schultes*, V. 284.—*Ceanothus reclinatus*, *De Cand. Prod.* II. 31.

HAB. Near Half-way Tree.

FL. End and middle of the year.

An erect tree: branches horizontally spreading; when young ferrugineo-subtomentose. Leaves glabrous above, 2–6 inches long. Peduncles axillary, ferrugineo-tomentose, about 7-flowered. Style triquetrous, 3-fid at the apex. Berry subrotund, 3-celled, 3-valved: seeds solitary, ovate, black, shining.

This tree is distinguished from the preceding species, by the different parts being ferrugineo-villous, and the style simple and 3-fid at the apex.

## ORDER LVIII. SAMYDEÆ.

Calyx persistent: sepals 3, 5, or 7, more or less cohering at the base. Petals 0. Stamens adnate to the tube of the calyx, in number double triple or quadruple that of the sepals: filaments monadelphous, either all of them anther-bearing, or each alternate one sterile, villous or ciliated: anthers 2-celled. Ovary superior, 1-celled: style 1: stigma capitate or sublobate. Capsule coriaceous, 1-celled, 3–5-valved,

∞-seeded; valves incompletely opening, often somewhat pulpy inside and coloured. Seeds fixed to the valves without order, with a fleshy arillus and excavated hilum: albumen fleshy: embryo inverted, minute: cotyledons ovate, foliaceous: radicle pointing in an opposite direction to the hilum.

The plants belonging to this Order are lowly trees or shrubs, chiefly natives of the West Indies and South America. Mr Brown has remarked that they are remarkable for their leaves having a mixture of round and linear pellucid dots, distinguishing them from all other families with which they are likely to be confounded. None of the species are possessed of any known properties. According to De Candolle, the bark and leaves are, in a slight degree, astringent.

### I. SAMYDA.

Stamens, all of them antheriferous. Stigma globose.  
—*De Cand.*

*Named*, from *σαμίδα* the birch, which this genus resembles in the foliage.

#### 1. *Samyda glabrata*. *Glabrous Samyda*.

Flowers 10-antherous, peduncles axillary 1-flowered, leaves ovato-lanceolate or oblong acuminate entire shining above.

*Swartz, Fl. Ind. Occ.* 760.

HAB. Not uncommon in Port-Royal mountains.

FL. Warmer months of the year.

A shrub, rarely more than 5 feet in height: branches alternate, patulous, ash-coloured, subterete, roughish. Leaves distichal, alternate, petiolate, oblong, somewhat lanceolate towards the apex, where they are slightly acuminate and subacute, entire, somewhat shining above, glabrous; except a few minute hairs beneath, pellucido-punctate, veined: petiole short. Peduncles axillary, solitary, scarcely more than a line in length, 1-flowered, furnished at the base with a pair of small ovate acuminate scarioso bracteas. Flowers white. Calycine tube campanulate; limb 5-partite, more than half the length of the calyx; divisions (one of them occasionally smaller than the rest) obtuse, externally green, internally white. Stamens 10: filaments united at the base and inserted in the throat of the calyx, short, thick, white, glabrous; anthers cordate. Ovary ovate, appresso-pubescent: style longer than the stamens: stigma capitate. Capsule size of the plum of Europe, sub-

globose, 3-gonal, 3-valved, 1-celled; valves thick, coriaceous. Seeds numerous, angulose, in an orange-coloured filamentose pulp.

## 2. *Samyda villosa*. *Villous Samyda*.

Flowers 10-antherous, peduncles axillary solitary 1-flowered, leaves oblong acute subserrated oblique at the base silky villous beneath.

*Swartz. Fl. Ind. Occ.* 758.

HAB. Mountains.

FL. Spring.

An erect shrub: branches terete, pubescent; branchlets villous. Leaves silky above, ferrugineo-hirsute along the nerves beneath. Flowers rather large, white. Calyx 5-fid to the middle, externally pubescent. Ovary pubescent: style thick: stigma capitate. Capsule large, ovate, fleshy, greenish, pubescent, 1-celled, 3-4-valved. Seeds many, ovate, shining: arillus scarlet or pale red.—*Swartz*.

## II. CASEARIA.

Stamens 12-30, monadelphous at the base, alternately antheriferous, alternately sterile, subulate or spatulate, in general villous or ciliated.—*De Cand*.

*Named*, by Jacquin in honour of John Casearius, a clergyman of the Dutch Church in Cochin-China, and a contributor to the Hortus Malabaricus.

### 1. *Casearia nitida*, *Shining Casearia*.

Flowers 8-antherous 5-partite, peduncles axillary cymose, leaves ovate subcordate subentire glabrous.

*Samyda foliis nitidis, lævissime crenatis, rudimentis mollibus rubentibus, racemis tenuioribus alaribus*, *Browne*, 217. t. 23. f. 3.—*S. nitida*, *Linn. Sp. Plant.* 557?

HAB. Liguanea.

FL. March.

A shrub, about 6 feet in height: branches terete, glabrous. Leaves alternate, petiolate, ovate, subcordate, obtuse, obsoletely crenulated, nerved and veined, very glabrous, shining, membranaceous, pellucido-punctulated. Cyme axillary, shorter than the leaf: pedicels filiform. Flowers of the same size, and bearing some resemblance to those of the Hawthorn. Sepals 5, obtuse. Filaments 16, each alternate one club-shaped, red and puberulous towards the apex, more than half the length of the anther-bearing filaments. Ovary conical: style erect: stigma obtuse.

The young leaves come out with the flowers, and are at first of a very soft texture and reddish colour. This is certainly the plant described by Browne.

## 2. *Casearia hirta*. *Hairy Casearia*.

Flowers 8-antherous 5-partite, pedicels crowded 1-flowered, leaves ovate serrated pubescent above hairy beneath along the nerves.

Swartz, *Fl. Ind. Occ.* 756.—*Prod.* 68.

HAB. Common in mountain pastures.

FL. May.

A shrubby tree: branches spreading, terete, angulose, pubescent. Leaves about 4 inches long and 2 broad, apiculated; the serratures distant and rather irregular: petiole short. Peduncles 1-flowered, in clusters, axillary and lateral, short, round, filiform, pubescent. Perianth 5-partite, greenish-white, externally puberulous, larger in proportion than in the rest of the species; divisions oblong. The barren-filaments short, villosoplumose, persistent: the anther-bearing filaments subulate, erect, smooth: anthers ovate. Ovary ovate. Style 3-quetrons, length of the stamens: stigma capitate, slightly 3-fid. Capsule oblong, shortly acuminate, 3-valved.

In the specimens which I have examined, the perianth was uniformly 5-partite and not 4-partite, as stated by Swartz.

## 3. *Casearia odorata*. *Sweet-smelling Casearia*.

Flowers 8-antherous 5-partite, pedicels 1-flowered axillary 10–15 together, leaves ovate acuminate with the apex obtuse crenato-serrated subglabrous pellucidopunctulated.

HAB. Common in Savannahs. St Thomas in the Vale. Port-Royal mountains.

FL. August, September.

A shrub, 6–10 feet in height: branchlets horizontally spreading, subterete. Leaves subdistichal, alternate, petiolate, ovate, acuminate with the apex obtuse or subemarginate, subglabrous, (minutely puberulous along the nerves), crenulato-serrulated (the teeth with a minute deciduous apicula), nerved, pellucidopunctulated, about 2 inches long and 1 broad: petiole short. Pedicels 10–15, crowded together, axillary, about  $\frac{1}{4}$  of an inch in length (twice that of the petiole), articulated at the middle, furnished at the base with minute marescent sheathing scales. Flowers greenish-white, fragrant. Sepals 5, oblong, obtuse. Stamens 16, monadelphous at the base; the 8 fertile ones erect, subulate; the barren ones truncated, villous. Ovary villous:

style erect, length of the stamens: stigma capitate. Capsule size of a coffee berry, 3-valved.

The flowers of this species are many times larger than those of *C. PARVIFLORA*, and are very fragrant, perfuming the air to a considerable distance. It approaches very near to *C. RAMIFLORA*.

#### 4. *Casearia parviflora*. *Small-flowered Casearia*.

Flowers 10-antherous 5-partite very small, pedicels crowded axillary 1-flowered, leaves oblong acuminate crenulated or subentire glabrous pellucido-punctulated.

Arbor baccifera, fructu minimo croceo, *Sloane*, II. t. 211. f. 2.—*Samyda*, *Browne*, 217.—*S. parviflora*, *Linn. Spec.* 557. *Swartz, Obs.* 178.—*Casearia parviflora*, *Willd.* II. 627.—*De Cand. Prod.* II. 49.—*C. sylvestris*, *Swartz, Fl. Ind. Occ.* 752?

HAB. Common in mountain thickets.

FL. April—August.

A shrub, 6–10 feet in height: branchlets alternate, nearly horizontally spreading, slightly compressed, virgultose, subflexuose, minutely puberulous. Leaves alternate, petiolate, distichal, oblong, acuminate with the apex obtuse, serrato-crenulated, glabrous, thin, pellucido-punctulated, nerved and veined: petiole very short. Flowers shortly pedicelled, 20–30, crowded together, axillary, small, of a pale yellow. Pedicels about 3 lines in length, 1-flowered, furnished at their insertion with minute ovate sheathing ciliated marescent scales. Sepals 5, roundish-ovate, concave, minutely ciliated. Fertile stamens 10, shorter than the calyx, alternating with the barren filaments, which are shorter, truncated, villose. Ovary conical, sub-3-gonal, green, minutely appresso-puberulous: style very short: stigmata 3, capitate. Capsule small, size of a black pepper, 3-valved, about 6-seeded.

I consider *CASEARIA SYLVESTRIS* of Swartz to be merely a variety of this species, produced by growing in a shady situation.

#### 5. *Casearia serrata*. *Serrated Casearia*.

Flowers 10-antherous 5-partite small, pedicels crowded axillary 1-flowered on a very short common peduncle, leaves oblongo-lanceolate finely serrated subglabrous pellucido-punctulated.

HAB. Road from Rose-hill to Peter's Rock, St Andrews.

FL. November, December.



A shrubby tree, about 8 feet in height: branches subterete, towards their extremities angulose, minutely puberulous. Leaves alternate, shortly petiolate, oblongo-lanceolate, acuminate, obtuse, sharply serrated, nerved and veined, subglabrous, 2 inches long, and  $\frac{1}{3}$  of an inch broad. Common peduncle about a line in length. Flowers numerous, crowded, axillary, on pedicels about 2 lines in length, each furnished with a minute scariose bractea at the base. Calyx 5-partite; divisions obtuse. Stamens 10, shorter than the sepals, alternating with 10 abortive villous filaments. Ovary globose, puberulous at the apex: style erect: stigma capitate. Capsule small, 3-valved, 5-seeded.

6. \* *Casearia hirsuta.* *Hirsute Casearia.*

Flowers 10-antherous 5-partite pubescenti-villous, peduncles lateral crowded 1-flowered, leaves ovate acuminate dentato-serrated hairy above villous beneath.

*Swartz, Fl. Ind. Occ.* 755.

HAB. Mountains.

FL. —?

A shrub: branches pubescent. Leaves large, soft. Peduncles lateral, below the leaves, crowded, 1-flowered. Calycine divisions ovato-lanceolate, villous, whitish. Sterile filaments villous. Style 3-quetrous: stigma capitate. Capsule ovate, acuminate, 3-gonal, 3-valved.—*Swartz.*

## ORDER LIX. HOMALINEÆ.

Calyx 10–30-partite. Petals 0. Glandules at the base of the inner calycine lobes, sessile. Stamens between the glandules, opposite to the inner calycine lobes, rarely solitary, generally in fasciculi of 3<sup>s</sup> or 6<sup>s</sup>. Ovary half inferior, 1-celled: styles 3–5. Fruit berried or capsular. Seeds small, with the embryo in the middle of a fleshy albumen.

Trees or shrubs. Leaves alternate, with deciduous stipules. Natives of the Tropics. Possessed of no known properties.

### I. HOMALIUM.

Calycine tube adhering to the ovary, obconical

limb 12-14-partite, in a double series, with the inner lobes alternate and narrower. Glandules 6-7, at the base of the inner lobes of the calyx. Stamens placed before the outer lobes among the glandules, in bundles of 3-6. Ovary superior, conical: styles 3, filiform.

Shrubs, peculiar to America; with leaves ovali-oblong, acuminate, serrate; flowers spicato-racemose. The root of one of the species, *HOMALIUM RACOUBEA*, is used in Guiana as a remedy for gonorrhœa.

1. *Homalium racemosum*. *Racemed Homalium*.

Leaves membranaceous serrate, racemes axillary and terminal, flowers pedicelled, fascicules of stamens triandrous.

*Jacq. Amer.* 170. t. 183. f. 72.—*Swartz, Fl. Ind. Occ.* 989.

HAB. Port Royal mountains.

FL. July, August.

A shrub about 9 feet, or a tree 30-40 feet in height: branches patulous, roundish, flexuose, marked with white spots or dots. Leaves about 5 inches long, alternate, oblong, acuminate, obtusely serrate, smooth, shining above, nerved, reticulato-venose, of a thin texture: petiole short, smooth. Racemes axillary, rarely terminal, solitary, 3-5 inches long, many-flowered: peduncle terete, pubescent: flowers greenish-white, shortly pedicelled. Calyx villous; the outer series 6-7 partite; divisions linearilanceolate spreading; the divisions of the inner series alternating with those of the outer, ovato-oblong, spreading. Glandules subglobose, slightly villous, whitish. Stamens as in the generic character: anthers minute purplish. Ovary conical, elevated, hirsute: styles 3, filiform, glabrous. Capsule hard, ovato-acuminate, 1-locular, internally marked with three elevated villous lines: seeds brownish.

According to Swartz, the leaves are only two inches long.

## ORDER LXII. TEREBINTHACEÆ.

Flowers hermaphrodite, polygamous or diœcious. Calycine sepals 3-5, more or less coalescing at the base; æstivation imbricated. Petals rarely 0, usually

equal in number and alternating with the sepals; æstivation imbricated or valvular. Stamens either equal in number and then alternating with, or double that of the petals, arising with them from the base or disk of the calyx, or rarely from the torus surrounding the base of the ovary. Ovary sessile or seated on a thickened disk. Fruit capsular or berried. Seeds few, in general solitary and exalbuminous: embryo straight, curved, arched, or replicate: cotyledons various; radicle in general superior.

Trees or shrubs; leaves alternate, without stipules, generally compound; bark resinous, balsamiferous, or gummiferous; flowers small, generally paniced.

### I. ANACARDIUM. *Cashew.*

Polygamo-dioecious. Calyx 5-partite. Petals 5, linear, acuminate. Stamens 10, unequal in length, with one twice the length of the rest, having the anther barren (or none?). Style and stigma 1. Nut reniform, laterally umbilicated, placed on an enlarged pear-shaped fleshy pedicel: seed of the same shape as the nut; embryo erect; cotyledons thick, semilunated; radicle exserted.

Trees, with leaves entire and penni-nerved, and with panicles terminal.—*Name*, from *ava* without, and *xagdia* heart.

#### 1. *Anacardium occidentale.* *West-India Cashew.*

Leaves oval very obtuse subemarginate slightly narrowed at the base with the length slightly exceeding the breadth.

*Browne, Jam.* 226.—*Acajuba, Gærtn. de Fruct.* I. 192. t. 40.—*Anacardium occidentale, Jacq. Amer.* 124. t. 181. f. 35.—*De Cand. Prod.* II. 62.

HAB. Common in the plains.

FL. After the rains during summer.

A spreading tree, 15–20 feet in height. Leaves at the ends of the branchlets, alternate, petiolate, oval, subovate, rounded and subemarginate at the apex, slightly narrower towards the base, entire, penni-nerved, coriaceous, glabrous. Panicle terminal, corymbose: common peduncle and its branches compressed and angulose, furnished at the divisions with an ovate acumi-

nate deciduous bractea. Flowers numerous, crowded at the ends of the divisions of the panicle, shortly pedicelled, at first white, but afterwards changing to crimson, fragrant, furnished at the base of the pedicel with an ovato-lanceolate concave deciduous bractea. Calycine segments ovato-lanceolate, acute, erect. Petals 5, linear, acute, with a sharp ridge in the middle internally for half the length from the base, subreflected, twice the length of the calyx. Stamens 10, rather shorter than the calycine segments, subunequal in length, with all the anthers perfect; or, as is usually the case in the fertile flowers, as well as occasionally in the barren, one of the stamens is stronger and twice the length of the rest, bearing a roundish 4-lobed barren anther, and there may be only the rudiments of several (3) of the shorter ones: filaments united at the base: anthers reniform. Ovary in the barren flowers obscure; in the fertile subrotund, compressed: style subunilateral, nearly as long as the petals, slightly curved: stigma obtuse. Shell of the nut formed of two hard coriaceous layers, connected by cellular tissue, filled with an acrid caustic oil. Pedicel, as the nut ripens, enlarging and forming a pyriform fleshy edible body, about 3 times the length of the nut; it is of a yellow or crimson colour externally, and of a yellow spongy consistence, yielding a subacid austere juice.

This is a very common tree in every part of the Island, with the exception of the very high mountains: it thrives best in our dry open plains. It is at first of quick growth, is long-lived, and yields annually, after the second year, an abundant crop. The fruit, when in perfection, is sweet and juicy; but leaves a rather unpleasant astringent sensation on the tongue. It is considered wholesome, and to be of service in cases where the tone of the stomach is impaired, and especially in the disease known by the name of *dirt-eating*. It forms, stewed with sugar or syrup, a very excellent preserve. A very good wine may be made from the juice; and a spirit not inferior to rum or brandy, possessed of diuretic properties, may be obtained by distillation. The fruit, sliced, is employed in the preparation of the beverage, known, in the country, by the name of Cashew-punch. The kernel of the roasted nuts is much esteemed, and considered not inferior to the sweet almond or pistachio nut. It is white, and of a sweetish taste: it has been given, infused in milk, for asthma and worms, and is said (Dict. Mat. Med. I. 275.) to have an effect in exciting the faculties, particularly that of memory, so that a preparation of it has been styled, *Confection des Sages*. The oil, contained in the shell of the nut, is thick, black, and very acrid, and has been applied as a caustic to remove warts and other cutaneous excrescences, and, introduced into the hollow of decayed teeth, to destroy the sensibility of the nerve. It has also been employed as a cosmetic for freckles, &c.; but this is doubtful, as the oil acts as blister, and would be very painful. The



milky juice, which flows copiously from every part of the tree, leaves an indelible stain on the clothes, and has been made use of as an ink to mark linens. The concrete gum is transparent, and not inferior to Gum Arabic, for which it is generally employed as a substitute.

### Mangifera, *Mango*.

Flowers polygamous. Calyx 5-partite, deciduous. Petals 5. Stamens 5, four of which are most frequently emasculate. Style 1. Drupe berried, sub-compressed, with the nucleus crinite with woody fibres, evalvular: seed ovato-oblong; embryo erect; cotyledons fleshy; radicle short.—*De Cand.*

Trees, natives of the East Indies: leaves entire, penninerved; panicles terminal; fruit edible.

*Named*, from *Manga* or *Manghos*, the vernacular name of the fruit, and *FERO* to bear.

#### 1. *Mangifera Indica*. *Common Mango*.

Leaves oblongo-lanceolate petiolate, panicles erect, petals at the apex patulous, only one stamen fertile, drupe subreniform glabrous.

*Manga domestica*, *Rumph. Amb.* I. 93. t. 25.—*Gærtn. de Fruct.* II. t. 100.—*Mao*, s. *Man*, s. *Manghos*, *Rheed. Mal.* IV. t. 1. and 2.—*Mangifera Indica*, *Lam. Ill.* 138.

HAB. Common every where.

FL. January, February; rarely October.

A tree, about 30–40 feet in height, of a spreading rounded form, with a dense foliage, forming a beautiful ornament to lawn or park. The panicle of flowers is large, branched, and divaricating: flowers somewhat fragrant, very numerous, crowded, only a very few coming to perfection.

This valuable tree was first introduced into this Island in June 1782, being among a number of valuable plants taken in a French vessel, bound from the East Indies to St Domingo, by Captain Marshall of His Majesty's Ship *Flora*, attached to Lord Rodney's squadron. They were first cultivated in the garden of H. East, Esq. afterwards the public Botanic garden, St Andrews. There being a great number of plants, producing several varieties of the fruit, they were regularly numbered. Hence two of the most esteemed sorts have since come to be known by the names of No. 11, and No. 32. The No. 11. is a flat-sided green fruit, of a delicious aroma, and an agreeable subacid taste. The No. 32 resembles it in form and fragrance, but



is of a yellow colour, and possesses a more luscious sweetness. Besides these, the following varieties may be noticed: 1. The Carrot Mango, a large fruit, with the pulp hard, and in taste, somewhat resembling the root which gives it its designation. 2. The Papaw Mango, of the same size with the last, but the pulp is juicy, and to the taste a luscious sweet. 3. Yellow kidney-shaped Mango, a very good fruit. 4. Green kidney-shaped Mango, a fruit of a luscious sweetness. 5. Tie-tie Mango; so named from the branches of the peduncle being long, and supporting the fruit like a bunch of onions; rather an inferior fruit. 6. Plum Mango; a small variety of the fruit and scarcely eatable. 7. The Parrot Mango, an oval plump fruit, of a green colour with an erubescence when ripe, juicy, with a somewhat turpentine flavour, subject to be infested with maggots. 8. The hard or turpentine Mango, resembling the last, but of a yellow colour, with the pulp hard, and only fit for stock. 9. The finger Mango; a long fruit resembling in shape the human finger, of no value. 10. The dwarf Mango; growing in the upper mountains, size of a small plum, of no account as a fruit.

Although the Mango is but of recent introduction, it is now the most common of our fruit-trees. It is very productive, and is eagerly sought after by almost all our domestic animals. It fattens hogs and horned stock, and to horses, will supply, in a great measure, the place of corn. As a fruit, the finer varieties, are esteemed by many as not inferior to the pine apple. They are very wholesome, and it is supposed, that the slight terebinthinate taste, which they all more or less possess, prevents the generation of worms. They are eaten plain, or sliced, with wine, sugar, and nutmeg; or they may be boiled; or different preserves may be prepared from them. A very palatable spirit may be obtained, from the juice of the fruit: by fermentation, in the usual manner, or vinegar, of rather an inferior quality, may be procured. In the unripe state they form a very excellent pickle, and constitute an ingredient of tarts.

The wood is light and friable, and is of little use except as fuel. It is much esteemed in India, where it is employed, mixed with sandal-wood, in burning the bodies of persons of distinction.

A gum, having some resemblance to Gum Tragacanth, may be obtained by wounding the bark of the stem or large branches.

This tree is raised from seed, and bears in the course of four or five years. In order to obtain a good variety, the only plan is to employ the seed of the desired sort; although this is attended with uncertainty. All attempts at grafting have failed, from the quantity of Gum-resin with which the bark abounds.

### III. COMOCLADIA.

Flowers hermaphrodite or monœcious. Calyx 3-4-

partite, persistent. Petals 3-4, long. Stamens 3-4, short. Ovary 1: style ○: stigma 1. Drupe ovate 1-celled, 1-seeded: ovule subpendulous, fixed to the fundus of the ovary by means of a funicle, curved at the apex: albumen ○: cotyledons thick: radicle superior, curved.—*De Cand.*

Trees, natives of equinoctial America, abounding in a glutinous juice: leaves impari-pinnate; flowers very small, shortly pedicelled, purple.—*Name*, from κομη hair, and κλαδος a branch.

### 1. *Comocladia integrifolia*. *Maiden-Plum*.

Leaflets petiolulated lanceolate entire glabrous.

*Prunus racemosa*, caudice non ramoso, alato fraxini folio non crenato, fructu rubro subdulci, *Sloane*, II. 131. t. 222. f. 1.—*Comocladia* caudice simplici, *Browne*, 124.—*C. integrifolia*, *Swartz*, *Obs.* 26.—*Jacq. Amer.* 12.—*Lam. Ill.* t. 27. f. 1.

HAB. Common.

FL. From December to the end of March.

Stem usually about 10 feet or more in height, in general simple, sometimes branched. Leaves towards the ends of the stem or branches, impari-pinnate: leaflets sub-opposite, shortly petiolulated, lanceolate, abruptly rounded at the base, acuminate, entire, glabrous. Panicles several, subterminal, lateral, compound, patulous, each furnished at the base with a short thick early deciduous scale. Peduncle elongated so as to render the panicle of nearly the same length as the leaves, compressed: branches compressed, coloured, puberulous. Flowers minute, of a deep purple, very numerous, crowded, shortly pedicelled, not unfrequently male from abortion. Calyx minute, 3-partite; divisions rounded. Petals 3, ovate. Stamens 3, alternating with and shorter than the petals: filaments purple: anthers yellow. Ovary minute. Drupe fleshy, of a deep purple, marked above with 3 black spots.

The whole tree abounds with a watery, but somewhat viscid acrid juice, becoming black on exposure to the air, and staining clothes and the skin black, indelibly in the former, and in the latter only removed by the renewal of the cuticle. The wood is said to afford a red dye.

### IV. PICRAMNIA.

Flowers diœcious. Calyx 3- or 5-partite. Petals 3, or 5, oblong. ♂ Stamens exserted, of the same number as the petals. ♀ Ovary ovate: style ○: stigmata 2. Drupe ovate: nut 2-locular, 2-seeded.

Lowly shrubs.—*Name*, from πικρος bitter.

1. *Picramnia Antidesma*. *Majoe* or *Macary Bitter*.

Flowers triandrous, racemes longer than the leaf, leaflets ovate or elliptico-lanceolate acuminate.

*Berberis fructu fruticoso racemoso, fraxini folio alato, fructu nigro dipyreno*, *Sloane*, II. 101. t. 208. f. 2.—*Picramnia fruticosa*, *Browne*, 123.—*P. antidesma*, *Swartz*, *Fl. Ind. Occ.* 218.

HAB. Mountain thickets.

FL. October, November.

A shrubby erect tree, about 8 feet in height: branches spreading, twiggy, glabrous, ash-coloured. Leaves pinnate, a foot and more in length; leaflets, the outermost the largest, and elliptico-lanceolate, the nearest ovato-lanceolate, acuminate, with the apex blunt, entire, nervose, venose, glabrous: common petiole subtriquetrous, puberulous: partial very short, subterete, coloured, puberulous. Racemes 1–2 feet, slender, striated, angulose, puberulous, pendulous, many-flowered: pedicels filiform, fasciculated. ♂ *Fl.* deciduous. Calycine divisions 3, lanceolate. Petals 3, lanceolate, patent, longer than the calyx. Filaments 3, subulate, approximating at their base, erect, rather longer than the petals, white: anthers didymous, ovate, rufous. Pistil ○. ♀ *Fl.* Of the same size as, and with the calyx and corolla of the former. Ovary globular, pubescent, oblong and slightly compressed (according to *Swartz*,): stigmata 2–3, sessile, spreading. Berry oblong, in size rather larger than the common horse-bean, of a scarlet colour, 2-celled; cells 1–2-seeded.

This shrubby tree affords a bitter, less intense than that of the *Quassia* or *Simaruba*, but much more grateful. The leaves are bitter, with a sweetish taste, resembling that of the liquorice, and a decoction has been prepared from them. The bark, however, is the part which has been principally employed in medicine. It has been given with success as an alterative in constitutional affections, connected with syphilis and yaws, and as a tonic in debility of the digestive organs, and in intermittent fever. I consider that it has not received that attention as a remedy, to which it is entitled.

## V. RHUS.

Calyx small, 5-partite, persistent. Petals 5. Stamens 5. Ovary 1, subglobose, 1-celled: styles short, 3, or with three sessile stigmata. Drupe generally juiceless, 1-celled, with a bony nut, perhaps by abortion 1-seeded, and sometimes 2–3-seeded. Seed exalbuminous, inverted, with the funiculus arising from

the bottom of the nut: cotyledons leafy: radicle incumbent over the upper fissure of the cotyledons.

Shrubs, rarely trees.—*Name*, from the Celtic RHUDD, *red*, on account of the colour of the fruit.

### 1. *Rhus Metopium*. *Jamaica Sumach*.

Leaves pinnate bijugate with an odd one very glabrous, leaflets petiolulated rotundo-oval very entire.—*De Cand*.

*Terebinthus maxima*, pinnis paucioribus majoribus atque rotundioribus, *Sloane*, II. 90. t. 199. f. 3.—*Metopium*, *Browne*, 177. t. 13. f. 3.—*Borbonia fructu corallino*, *Plum. ic.* 61.—*Rhus Metopium*, *Linn. Amæn.* V. 395.

HAB. Common on limestone hills.

FL. January, February.

A shrubby tree, 15–20 feet in height: branches erect, terete, glabrous. Leaves at the end of the branches, imparipinnate; leaflets petiolulated, 2-paired with an odd one, oval-rotund, obtuse (sometimes emarginate) at the apex, subacuminate and, in the lateral leaflets, unequal at the base, entire, nerved and veined, green and shining above, paler beneath, very glabrous: petiole subterete, slightly channelled above. Racemes axillary, longer than the leaves, solitary, subsimple. Calyx 5-fid, persistent. Drupe oblong, glabrous, shining, of a scarlet colour: nut chartaceous: funicle large, expanded, covering one of the edges of the seed.

This shrubby tree has long been confounded with the MORO-NOBEA COCCINEA, the true Hog-gum tree.

### 2. *Rhus arborea*. *Tree Sumach*.

Leaves 3-foliate, leaflets lanceolato-oblong obsoletely serrulated subglabrous above pubescent beneath, peduncles axillary and solitary 1-flowered.

*Toxicodendron arboreum*, *Mill. Dict.* No. 8.—*Sloane, Cat.* 170.—*Rhus arborea*, *De Cand. Prod.* II. 73.

HAB. The Falls on the Windward road. Near Hanson's Salt-pond.

FL. August?

A tree, about 30 feet in height, with spreading branches. Leaves at the ends of the branches, petiolate, 3-foliate; leaflets petiolulated, lanceolato-oblong, rounded and apiculated at the apex, obsoletely crenulato-serrulated, subglabrous above, pubescent beneath, nerved, membranaceous: petiole elongated, terete, pubescent. Peduncles axillary, half the length of the petiole,



solitary, 1-flowered. Fruit size of a small plum, orange-yellow, smooth. Nut from abortion 1-seeded: seed exalbuminous; funicle central, arising from the base, lying between the lobes of the cotyledons as in a sheath; cotyledons leafy and plicato-corrugated; embryo thick, white; radicle incumbent.

It is probable that this may be found to constitute a genus distinct from RHUS. I have not, however, been successful in observing the flower, and have met with only two individuals of the species. The fruit has a great resemblance in size and appearance to that of the *Hog-plum*, but the taste is intensely bitter. It is green at Christmas, and ripens towards the end of March, so that it is probable that August may be the period of flowering.

This tree is stated to be also a native of Campeachy.

## VI. SPONDIAS. *Hog-Plum*.

Calyx 5-fid, coloured. Petals 5, oblong. Stamens 10, arising from a glandulose crenated disk. Ovary 1, ovate: styles 5, erect, distant. Drupe with a fibrous 5-locular nut. Ovules 2 in each locule. Seeds from abortion solitary, exalbuminous, with the embryo straight; cotyledons somewhat fleshy; radicle inferior.

Trees; with the leaves impari-pinnate, rarely simple; racemes axillary, simple or paniced.—*Σπονδία* was the Greek name of a kind of plum.

### 1. *Spondias lutea*. *Yellow Spanish-Plum*.

Leaves impari-pinnate, leaflets 10-paired subalternate obovate subacuminate and serrated towards the apex, petiole 3-gonal, racemes short.

*Spondias foliis paucioribus pinnatis ovatis nitidis*, Browne, 229.—*S. Myrobalanus*, var.  $\beta$ . Willd. *Sp.* II. 751.

HAB. In the Port-Royal mountains. Not uncommon throughout the Island.

FL. May.

A tree, 15–20 feet in height: branches spreading, irregular, glabrous, punctato-pustulose at their extremities. Leaves situated on the shoots of the last year: leaflets 10-paired with an odd one, 1–1½ inch long, shortly petiolulated, somewhat obovate, unequilateral at the base, slightly acuminate or acute with a few serratures at the apex, nerved and veined, subcoriaceous, glabrous with exception of a slight pubescence on the midrib near the base: petiole 7–8 inches long, keeled below,



3-sulcate above, pubescent. Peduncles making their appearance in the axils of the leaves of the former year which have dropt off, subsolitary, not an inch in length, subsimple: flowers many, tinged with red; on pedicels 2 lines in length, terete, puberulous, furnished at their insertion with 3 ovate scale-like bracteoles (the middle one the largest). Minute pellucid globules on the peduncle and pedicels. Calyx small, 5-fid; divisions bluntish, minutely ciliated. Petals 5, much longer than the calyx, oblong, acute, tinged with red towards the apex. Stamens 10, inserted on a 10-crenulated disk; filaments erect, subulate: anthers small, yellow. Ovary green, 5 (or fewer by abortion) -pointed at the apex. Drupe oval, size of the common Hog-plum, yellow with an orange tinge.

The leaves of this species are shed about the month of February, leaving the tree naked. After some weeks the flowers make their appearance, and, as the fruit forms, they are succeeded by the young leaves. The fruit ripens about the month of July. It is of a sweet taste, with more astringency than that of the *S. PURPUREA*. It is very subject to worms, from insects depositing their ova in its pulp, as soon as it begins to ripen. Hence, it must be collected before it is half ripe, in order to eat it free from maggots. Were it not for this, it would be in some esteem as a fruit, as it is very palatable. This tree has a great resemblance in the mode of growth, and in the appearance of the leaves, to the following species.

2. *Spondias purpurea*. *Leather-coat or Red Spanish-Plum*.

Leaves impari-pinnate, leaflets 8–10-paired lanceolate acuminate at both ends serrated towards the apex, petiole sub-3-gonal, racemes short.

*Myrobalanus minor fructu purpureo*, *Sloane*, II. 126. t. 219. f. 3, 4, 5.—*Spondias diffusa, floribus præcocibus*, *Browne*, 228.—*S. Mombin*, *Gærtn. Fruct.* II. 102. t. 104.—*S. Myrobalanus*, *Jacq. Amer.* 139. t. 88.

HAB. Common in the plains.

FL. April.

A tree, 10–15 feet in height, of irregular growth. Leaves impari-pinnated: leaflets subopposite, petiolulated, lanceolate, acute, acuminate at the base, unequilateral, serrated towards the apex, subentire towards the base, glabrous, obscurely pellucido-punctulated, nerved: petiole sub-3-gonal, 3-sulcate above, with the ridges as well as the petiolules puberulous. Racemes in the axillæ of the leaves of the former year, scarcely more than an inch in length, subsolitary, subsimple. Calycine segments 5, minute, coloured. Petals 5, oblong, incurved at the apex. Stamens 10, unequal in length (the 5 which alternate with the

petals being apparently the longest): filaments subulate, compressed: anthers small, yellow. Disk annular, crenulated, purple. Ovary 3-gonal: styles 3: stigmata simple. Drupe oblong, six-lined, purple.

This is a very pleasant fruit, of a sweet subacid taste, and well deserving of cultivation. It is not liable to be infested by insects, from the thickness of the rind serving as a protection against their attacks. Confections and jellies are made from it in the French Islands.

### 3. *Spondias graveolens*. *Common Hog-Plum*.

Leaves impari-pinnate, leaflets 5-8-paired ovato-oblong acuminate with the apex blunt obsoletely serrulated, petiole subterete, raceme paniced much longer than the leaves.

*Myrobalanus folio fraxini alato*, Sloane, II. 125. t. 219. f. 1, 2.—*Spondias Mombin*, Jacq. Amer. 138.—*Gærtn. de Fruct.* II. 102.—*S. lutea*, De Cand. Prod. II. 75. *Swingley - Anacardiaceæ*

HAB. Common.

FL. May.

A lofty spreading tree. Leaves at the ends of the branchlets, impari-pinnate: leaflets 5-8-paired, petiolulated, ovato-oblong, acuminate with the apex blunt, unequilateral at the base, obsoletely serrulated, glabrous, nerved and veined: petiole subterete, puberulous. Racemes terminal, paniced, 6-12 inches in length: peduncle and its divisions compressed, angulose. Flowers numerous, of a yellowish white, slightly fragrant, shortly pedicelled. Calyx minute, 5-fid, puberulous. Petals 5, oblong, reflected. Stamens 10, erect, length of the petals: anthers yellow. Disk glandulose, yellow, 10-crenulated. Styles 5, short, appressed to each other. Drupe oval, yellow.

A branch of this tree, made into a post, driven into the ground, readily takes root, and is frequently employed in making fences. The tree, being of rapid growth, and affording a fine shade, is planted in pastures for the sake of the cattle.

The fruit is called *Mombin* by the French colonists, and *Jobo* by the Spanish. It has a rank smell, but an agreeable subacid taste. It is seldom made use of; but is accounted an excellent food for fattening hogs. Barham recommends an infusion of the bark and leaves as a bath, followed by dry friction, in cases of œdema. A reddish or dark brown gum exudes from the tree when wounded. Hence, the young tops boiled in water, from the mucilage they contain, may be employed for shaving, when the skin is too irritable to permit the use of soap. Water, like that from the stem of the *water-wilthe*, is said to flow from the roots when divided. The wood is light, and capable of being used as a substitute for cork.

*SPONDIAS DULCIS*, a native of the Mauritius and the Society Islands, has been introduced, and at present grows in the Botanic Garden at Bath.

## VII. BURSERÆ.

Flowers polygamous. Calyx small, 3-5-partite, with the lobes obtuse. Petals 3-5, during æstivation valvular. Stamens 6-8. Disk annular, subocto-crenated. Ovary ovate, 3-celled: style short, 3-fid at the apex. Drupe oblong, 3-stoned, with the husk succulent, 3-valved; 2 of the stones abortive, and 1 fertile, fleshy, 2-ovuled, 1-seeded. Seed pendulous, exalbuminous; cotyledons leafy corrugato-plicate; radicle straight, superior.—*De Cand.*

American balsam-bearing trees: leaves impari-pinnate, or simple from the odd leaflet only being present.—*Named*, after Joachim Burser, Professor of Botany at Sara, in Naples.

### 1. *Bursera gummifera*. *West-Indian Birch-tree*.

Leaves deciduous generally impari-pinnate, leaflets ovate acute membranaceous, racemes axillary.

*Terebinthus major betulæ cortice, fructu triangulari*, *Sloane*, t. 199.—*Terebinthus foliis cordato-ovatis pinnatis, cortice lævi rufescente, floribus masculis spicatis*, *Browne*, 345.—*Bursera gummifera*, *Jacq. Amer.* 94. t. 65.—*Swartz, Obs.* 130.

HAB. Common in the plains.

FL. March, April, with the new leaves.

A tree, usually of moderate height, with the bark of a reddish colour, and the epidermis scaling off. Leaves impari-pinnate: leaflets 3-4-paired, petiolulated, ovato-oblong, acuminate, entire, glabrous, shining above, nerved and veined: common petioles, villous when the leaves are young, angulated, subarticulated at the insertion of the leaflets. The flowers make their appearance with the young leaves in Spring, small, not showy.

♂ Raceme subterminal, axillary, shorter than the common petiole, several together, compound, many-flowered: common peduncle terete, thickish, villous: pedicels filiform, several together. Calyx minute, 5-partite. Petals 5, lanceolate, reflected. Stamens 5, 8, or 10, of nearly the same length as the petals; anthers yellow, linear. Ovary 0: style 3-fid, caducous, or 0.

♀ Raceme as in the male, but the flowers are less numerous. Calyx minute 3-partite. Petals 3, ovate, acute, patent, deciduous. Stamens 6. Ovary ovate; style short, thick, 3-fid: stigmata simple. Drupe sub-3-lobate, 3-celled, 3-valved: only

one seed usually coming to perfection, from the seeds of two of the cells proving abortive.

This tree sheds its leaves during the months of March and April; and, after remaining bare for a few weeks, produces its young leaves with the flowers. It is common in most of the West-India Islands. It receives from the English colonists the name of *Birch*, from the bark having a resemblance to that of the tree which bears that name in Europe. The French call it *Gummier*, from the resin it affords; and the Spaniards *Almici-go*, or Mastic-tree. All parts abound with a glutinous balsamic juice, of a turpentine odour. It forms, on inspissating, a clear transparent gum-resin, of a dark green colour, resembling gum mastic, of a disagreeable alliaceous smell, soluble in spirits of wine, and capable of being employed, in place of Gum Mastic, as a transparent varnish. It might be given also, in the form of pills, as a substitute for Copaiba and other nauseous balsams, in diseased discharges from the mucous membranes. Jacquin mentions, that the bark of the root is exported to Europe, in place of that of the *SIMARUBA*.

As a timber-tree the Birch is of no value, the wood being white, soft, and brittle. It is therefore only employed as fire-wood.

## 2. *Bursera simplicifolia*. *Simple-leaved Bursera*.

Leaves simple cuneato-obovate, racemes axillary, seeds compressed elliptic.

*De Cand. Prod.* II. 79.

HAB. Common on Windsor Park Penn.

FL. April, May.

A tree 15 feet in height, with branches spreading, round, smooth. Leaves entire, obscurely nerved, smooth, coriaceous, dark green above, 2 inches long, and about 1 broad: petiole  $\frac{1}{3}$  of an inch in length. Racemes axillary, longer than the leaves, simple; peduncle compressed, smooth; pedicels short. Calyx small, 3-fid; divisions blunt. Petals white, lanceolate, spreading. Stamens 6: filaments short. Ovary globose: style  $\bigcirc$ : stigma sub-capitate. Drupe size of a large currant, one-stoned: stone exactly 3-gonal, with the angles sub-alate.

## VIII. AMYRIS.

Flowers hermaphrodite. Calyx 4-dentate, persistent. Petals 4, hypogynous, cuneato-unguiculated, imbricated during æstivation. Stamens 8, shorter than the petals. Ovary placed on the incrassated disk-shaped torus, 1-celled. Stigma sessile. Drupe with the nut chartaceous, 1-seeded.



Trees or shrubs, natives of America; leaves compound; leaflets pellucido-punctate; flowers paniced, white. Drupe turgid with an aromatic oil.—*Name*, from *μύρρα myrrh*, from the valuable gum or resin, which almost every species of this genus affords.

1. *Amyris sylvatica*. *Shrubby Torch-wood*.

Leaflets 1-paired with an odd one subrotundo-ovate acuminate crenulated petiolulated, the odd leaflet the largest.

*Baccifera trifolia racemosa*, flosculis albis tetrapetalis, fructu nigro monopyreno fœtido, *Sloane*, II. 101.—*Amyris fruticosus minor*, foliis orbiculatis pinnato-ternatis, *Browne*, 209.—*A. sylvatica*, *Jacq. Amer.* 107.—*A. maritima*, *Swartz, Obs.* 148.

HAB. Common in Port-Royal mountains. Thickets near the Sea-shore.

FL. May—August.

A shrub, varying from 2–15 feet in height; branches few, long, terete, verrucose, ash-coloured. Leaves at the extremities of the branches, ternate: leaflets ovate or rhomboideal, rounded or occasionally subattenuated at the base, acuminate at the apex which is blunt, slightly crenated, or, where the soil is rich, duplicato-crenated, glabrous, pellucido-punctate, membranaceous, 2 inches or more in length: common petiole compressed: petiolules short, terete. Panicle terminal and axillary, and alternately branched; flowers numerous, small, white. Calyx persistent, minute, 4-fid, with the divisions blunt. Drupe globose, black, size of that of a Pimento berry: nut oval.

This is a common shrub in thickets, and varies in the size and form of the leaves, flowers, &c., from soil and situation. I have no doubt, but that the following species of Jacquin, is properly a variety of the one we are at present considering.

2. \* *Amyris maritima*. *Sea-side Amyris*.

Leaflets 1-paired sessile with an odd one petiolulated, ovate crenated obtuse.

*Jacq. Amer.* 107.

HAB. Sea-shore at the Havannah, *Jacquin*. Jamaica, *De Candolle*.

FL. —?

3. *Amyris balsamifera*. *Mountain fragrant Torch-wood*.

Leaflets 2-jugate with an odd one petiolulated ovate acuminate subentire very glabrous, panicle terminal sessile.



*Amyris arboreus*, foliis bijugatis ovatis glabris, racemis laxis terminalibus, *Browne*, 208.—*A. balsamifera*, *Swartz*, *Obs.* 149.—*A. toxifera*, *De Cand.* II. 81?

HAB. Common, Port-Royal mountains.

FL. October.

A shrub about 6, or a tree 15 feet in height: branches erect, of an ash colour, rough with small whitish asperities, glabrous. Leaves sub-opposite, impari-pinnate: leaflets 2-paired with an odd one, petiolulated, ovate, more or less rounded at the base, acuminate with the apex acute, subentire, very glabrous, of a bright green, somewhat shining and obscurely nerved above, pale and reticulato-venose beneath, pellucidopunctate: common petiole terete: petiolules short, terete. Panicle terminal, sessile (*i. e.* no common stalk): peduncles several, arising from the end of the branch, compressed, puberulous, subdivided: branchlets short, compressed, puberulous, with a small ovate bractea at the base of each. Flowers numerous, white, slightly fragrant, very shortly pedicelled, in threes, with a pair of minute bracteoles below each flower. Calyx minute, 4-fid; divisions ovate, ciliated, glanduloso-punctulate. Petals 4, cuneato-unguiculated, concave, patenti-reflex, glanduloso-punctate. Stamens 8, of nearly the same length as the petals, patent: anthers white. Ovary seated on an amber-coloured disk, ovoid, minutely puberulous: stigma subsessile, capitate.

The branches of this shrubby tree, when broken or bruised, exhale a strong smell. *Swartz* mentions that he had not an opportunity of examining it.

There are two additional species, *A. PHILIPPÆA*, and *A. ROBINSONII*, noticed by Mr. Anthony Robinson, in Long's History of the Island. In both, the leaves are 3-foliate, and the petioles margined.

## IX. EXOTHEA.

Calyx 3-partite. Petals 5, shortly clawed, alternating with the divisions of the calyx. Stamens 7–8. Ovary supported on an annular fleshy disk. Drupe with the nut chartaceous, 1- rarely 2-seeded: radicle superior.

*Name*, from ἐξωθεω to expel; the plant about to be described, being allied to the AMYRIDÆÆ, but separated from them by certain characters.

### 1. *Exothea oblongifolia*. *Oblong-leaved Exothea*.

HAB. Port-Royal mountains. Road to Friendship-house, St David's.

FL. February, March.

A tree about 15 feet in height : branches erect, terete, glabrous, rimoso-punctulated. Leaves alternate, equally pinnated : leaflets 2- rarely 3-paired, subsessile, 2-3 inches long, and 1 broad, oblong, obtuse or subemarginate at the apex, entire, obscurely veined, shining above, glabrous except the midrib which is minutely puberulous beneath, thin, membranaceous, impunctate : petiole sub-3-quetrous, striated, glabrous, 2 inches in length. Stipules none. Panicle terminal, sessile, composed of many branches : branches subdivided, compressed, angulose, aureo-puberulo-tomentulose, as also the pedicels, which are very short. Flowers numerous, white, fragrant, resembling in appearance, as well as in smell, those of the Hawthorn of Europe. Bractees at the subdivisions of the panicle, minute, ovate, acute. *Æstivation* imbricated. Calyx 5-partite, externally puberulous ; divisions rotundo-ovate. Petals 5, roundish, shortly clawed, alternating with and somewhat smaller than the divisions of the calyx. Stamens 7, more usually 8, irregularly inserted between the lobes of an annular fleshy red puberulous disk ; filaments somewhat longer than the calyx : anthers ovate, 2-celled. Ovary conical, villous, seated on the disk : style short (?) : stigma obtuse. Drupe size of a small cherry, with the rind glandulose, of a deep purple colour, 1-pyrene : nut large, chartaceous, 1-seeded : radicle superior, curved, the size of that of the common pea ; cotyledons fleshy.

Only some of the trees bear fruit. The flowers would therefore appear to be polygamous. The fertile ones are furnished with both stamens and pistil ; in the barren, the latter must be imperfect. This is a handsome tree. It approaches nearly to the genus *AMYRIS*, but is distinguished from it by several marks, and among others by the leaflets not being pelliculo-punctate.

#### X. SPATHELIA.

Flowers hermaphrodite. Calyx 5-partite, membranaceous, coloured. Petals 5, hypogynous, during *æstivation* imbricated. Stamens 5 ; filaments short, tricuspidate, dilated and villous at the base. Ovary subconical, 3-angular, 3-locular ; locules biovuled : style ○ : stigmas 3. Drupe oblong, 3-locular, 3-gonal with the angles alate, sometimes 2-alate and 2-locular. Seeds oblong, solitary in each locule : albumen fleshy : embryo straight, inverted : cotyledons lineari-oblong, slender ; radicle short.—*De Cand.*

Trees : leaves impari-pinnate ; racemes panicked, subterminal.—*Name*, from *σπαθη* a palm, from the shrub before us resembling that Family of Plants in several respects.

1. *Spathelia simplex*. *Mountain-pride*.

Leaves about 20–35-paired, leaflets oblong.

*Aceri aut. Paliuro affinis arbor caudice non ramoso, foliis sorbi, floribus purpureis, Sloane, II. t. 171.—Spathelia simplex, Bot. Reg. t. 670.—Gærtn. Fruct. I. 278. t. 58.*

**HAB.** Common in the lower mountain districts, particularly of a limestone formation.

**FL.** Summer months.

A tree, 20–30 feet in height, simple, not branched, terete, scarred, bearing the leaves and flowers at its extremity, where it is ferrugineo-tomentulose. Leaves 3–4 feet in length, impari-pinnated: leaflets 3–6 inches long (those at the centre of the leaf being the largest), about 30-paired, subopposite, shortly petiolulated, oblong, acuminate with the apex incrassated and bluntish, unequal at the base, nerved and veined, minutely stellato-puberulous especially above: common petiole 3-gonal, channelled above, thickened at the insertion, ferrugineo-puberulous: petiolules terete, stellato-puberulous. Raceme paniced, subterminal, 4–6 feet in height: flower-stalk very much branched, angulose, deep purple, stellato-puberulous: flowers numerous, of a crimson lilac colour, on short filiform pubescent pedicels. Calycine sepals 5, oblong, blunt, minutely ciliated and puberulous externally, coloured, membranaceous. Petals twice the length of the sepals, oblong, subacute. Filaments 5, dilated and internally villous at the base: anthers large in proportion, oblong. Ovary 3-gonal, minutely puberulous: style ○: stigmata 3, minute, spreading.

This is one of the most beautiful and showy of our native plants. During the summer months it is a conspicuous object in the mountain's woods, rising with a straight simple stem above the surrounding shrubs and lowly trees, crowned with a circle of leaves, and adorned with a magnificent plume of bright purple flowers. This tree commences flowering in the 5–7th year, and, after that, continues to do so annually.

XI. *SURIANA*.

Calyx 5-partite. Petals 5, hypogynous or inserted at the base of the calyx. Stamens 5–10 with some of them usually abortive. Carpels 5, bearing a filiform style from their inner side, terminating in a coriaceous valveless indehiscent nut. Seed single, obvato-reniform, exalbuminous; embryo replicate; radicle terete, directed downward; cotyledons plane, incumbent.—*De Cand.*

*Name*, in honour of Joseph Donat Surian.

1. *Suriana maritima*. *Sea-side Suriana*.

*Thymelææ facie frutex maritimus tetraspermus, Sloane, II. 29. t. 162. f. 4.—Suriana maritima, Browne, 190.—Jacq. Amer. 140.—Swartz, Obs. 185.—De Cand. Prod. II. 91.*

HAB. Sea-shore at Plantain Garden River bay.

FL. June.

A shrub, 5 feet in height, erect: branches terete, tomentose, afterwards from lacerations of the cuticle reticulato-tomentose. Leaves numerous, crowded at the ends of the branchlets, oblongo-spathulate, attenuated towards the base, rounded with a small apicula at the apex, entire, veinless, nerveless, thick, subvelutino-pubescent (with the hairs slightly hooked): petiole very short. Stipules none. Peduncle subterminal and axillary, about 5-flowered, scarcely longer than the leaves. Flowers small, yellow, pedicelled. Bractæas small, leaflike, at the divisions of the peduncle. Calyx 5-partite; divisions erect, lanceolate, acute, sericeo-pubescent. Petals 5, slightly clawed, rounded at the apex, length of the calyx. Stamens 5, hypogynous: filaments subulate, villous at the base, with the remains of 5 others which are abortive: anthers ovate, yellow. Carpels 5, albido-villous, each bearing a style from the inner side; stigmata obtuse. Capsules contained within the persistent calyx, 5, pubescent; each one-seeded.

This is considered by Jacquin as an elegant shrub. It is a native of the shores of the warmer parts of America and India, of New Caledonia and the West-India islands. The specimens from New Caledonia are usually decandrous.

## ORDER LXIII. LEGUMINOSÆ.

Calycine sepals 5, more or less coalescing at the base so as to be either 5-dentate, 5-fid, or 5-partite, but never in the strict sense 5-sepalled. Petals 5, or by abortion, 4, 3, 2, 1, or none; in general unequal, inserted into the base of the calyx, rarely on the torus. Stamens inserted with, and double the number of the petals, or rarely 3 or 4 times the number, or fewer, either free, or with the filaments variously connected so as to be monadelphous, diadelphous (9 and 1 or 5 and 5), or rarely triadelphous. Ovary simple. Fruit a legume or drupe. Seeds attached to the upper suture; embryo destitute of albumen,



either straight or with the radicle bent upon the cotyledons.

Trees, shrubs or herbaceous plants. Leaves generally bistipulated; petiole very frequently callous at the base. This is a very extensive order, comprehending, according to the Prodomus of De Candolle, 3438 species. The properties they possess are various. I shall shortly allude to them in giving the general characters of the different sub-orders.

This order is divided by De Candolle into;

I. CURVEMEMBRIÆ, in which the radicle of the embryo is bent back on the cotyledons.

II. RECTEMEMBRIÆ in which the radicle is straight. Of each of these divisions two sub-orders are established. The CURVEMEMBRIÆ are divided into, 1. PAPILIONACEÆ; and 2. SWARTZIÆ; and the RECTEMEMBRIÆ into, 1. MIMOSEÆ; and 2. CÆSALPINEÆ.

## DIVISION I. CURVEMEMBRIÆ.

### Sub-Order 1. PAPILIONACEÆ.

*Character.* Calycine lobes distinct. Stamens perigynous. Corolla papilionaceous.

This sub-order may be further subdivided, into those, 1st, in which the cotyledons, when they appear above ground, become green, and assume the character of leaves; and 2dly, those in which the cotyledons are thick and fleshy. It is deserving of remark that the seeds of none of the first subdivision are eaten by man or animals: whereas those of the second comprehend the different kinds of pulse, affording an important and wholesome description of food.

\* *Papilionaceous plants, with the cotyledons leafy.*

### Tribe I. *Sophoreæ.*

*Legume continuous. Stamens free.*

#### I. SOPHORA.

Calyx 5-dentate, campanulate or sub-attenuated at the base. Petals of the keel generally concrete at the apex. Legume moniliform, apterous, many-seeded. —*De Cand.*

Trees, shrubs, or herbaceous plants: leaves impari-pinnated: racemes terminal, simple, or paniced. *Name*, of Arabic derivation.



1. *Sophora tomentosa*. *Woolly Sophora*.

Fruticose, leaflets 6-7-paired ovali-subrotund emarginate incano-velutino-tomentose beneath, racemes terminal of the same length as the leaves.

Arbori coral affinis non spinosa, fraxini folio rotundiore, foliis et ramulis pubescentibus, *Sloane*, II. 40. t. 178. f. 3.—*Galega*, No. 1. *Browne*, 289, t. 31. f. 1.—*Corallodendron foliis subtus tomentosis, flore luteo, Plum. Spec.* 21.—*Sophora occidentalis, Swartz, Obs.* 154.—*S. tomentosa, De Cand. Prod.* II. 95.

HAB. On rocks and sandy places near the sea-shore. On rocks below the Battery at Tichfield, Port Antonio.

FL. May—September.

Shrubby, usually 4-feet in height; stem subsimple, terete and incano-velutino-tomentose towards the apex. Leaves towards the end of the stem, impari-pinnate, about 10 inches in length: leaflets 7-paired, shortly petiolulated, ovali-subrotund, usually emarginate at the apex, subcordate at the base, glabrous above, hoary and velutino-tomentose beneath: petiole terete, incrassated at the base, hoary, velutino-tomentose. Racemes terminal, many-flowered, 8-10 inches long: peduncle terete. Flowers shortly pedicelled, approximating, rather large, showy, yellow. Calyx externally pubescent, 5-toothed; the 2 upper teeth obtuse, afterwards obsolete; the 3 lower ones persistent. Standard longer than the other petals: wings and keel each of two petals, equal, linear, clawed, slightly agglutinated at the base. Stamens 10, slightly cohering at the base; 5 of them rather longer than the rest. Ovary stipulate, terete, incano-pubescent: style subulate: stigma simple. Legume 5 inches long, stipitate, moniliform, at first pubescent, afterwards glabrous. Seeds subreniform.

This is rather a handsome shrub, and has of late been cultivated in our gardens.

## II. ORMOSIA.

Calyx with the upper lip bilobed, the under 3-partite. Standard subrotund scarcely longer than the wings and keel. Stamens 10; filaments dilated at the base. Style incurved: stigmata approximate, obtuse, with one of them unilateral. Legume woody, compressed, 2-valved, 1-3-seeded (when young 5-6-ovuled).—*De Cand.*

Name, from *ορμος* a necklace, for making which, the showy scarlet seeds with a black eye of the following species, are well adapted.—*Enc. of Pl.*

1. \* *Ormosia dasycarpa*. *Red Bead-tree*.

Leaves impari-pinnate 4–6-jugate, leaflets acuminate glabrous, legumes tomentose.

*Glycine arboreum*, foliis oblongis, seminibus majoribus, *Browne*, 298.—*Sophora monosperma*, *Swartz*, *Fl. Ind. Occ.* 722.—*Ormosia dasycarpa*, *Jacks. Trans. Linn. Soc.* X. 360.—*R. Brown*, *H. Kew. ed.* 2. III. 3.

HAB. —?

FL. April.

A tree, 10 feet in height: branches ferrugineo-tomentose. Panicle terminal, many-flowered: flowers large, blue, fragrant. Legume ovate, villous, 2-valved, 1-seeded; seed large, spherical, scarlet, marked with a black spot.—*Swartz*.

*Browne* informs us that he met with this plant in Montserrat; and *Swartz* gives it, on the authority of Dr Anderson, as a native of the West-India islands. I am inclined to doubt its being indigenous to this Island.

Tribe II. *Loteæ*.

*Legumes continuous. Stamens with the filaments concrete.*

III. CROTALARIA. *Rattle-wort*.

Calyx 5-lobed, sub-bilabiate; upper lip 2-fid, the under 3-fid. Stamens large, cordate; keel falcate, acuminate. Filaments connected; sheath generally divided above. Style laterally barbato-pubescent. Legume turgid, with the valves ventricose, inflated, generally many-seeded, pedicelled.—*De Cand*.

Herbs or shrubs; leaves simple, or palmato-compound, 3- (or rarely) 5-foliate; flowers generally yellow; bracteoles very small, at the base of the pedicels, or of the calyx.—*Κροταλον*, was the name of a noisy Greek instrument, similar to the cymbals, or, according to some, to the castanets of the present day. It applies to the present genus, from the seeds rattling, when ripe, in the inflated pods, and occasioning a noise. The flowers of many of the species deserve, in some degree, the name of beautiful. They do not however possess any valuable or peculiar qualities.

1. *Crotalaria verrucosa*. *Warted Rattle-wort*.

Stipules lunated declinate, leaves simple oval,

branches acutely tetragonal, racemes terminal, ovaries villous.

Pee-tandale-cotti, *Rheed. Mal.* IX. 53. t. 29.—*Crotalaria angulosa*, *Lam. Encycl.* II. 196.—*C. verrucosa*, *Linn. Sp.* 1005.—*Hooker, Bot. Mag.* 3034.

HAB. Common, especially in Cane pieces.

Herbaceous, a foot or more in height, with spreading acutely quadrangular branches. Leaves more or less attenuated at the base into a short petiole, rounded and in general retuse with an awn at the apex, entire, pubescent. Stipules falcato-lanceolate, deflected. Racemes terminal, of about 7 rather large and handsome blue flowers. Calyx somewhat 2-lipped, 5-fid. Standard bent back, of a pale blue streaked with deep purple veins, with two squamose callosities at the base: wings obovate: keel whitish, tinged with yellow at the apex. Stamens monadelphous, alternately short and long: the former with oblong, the latter with round orange-coloured anthers. Ovary subterete, linear, hairy: style geniculated, pubescent on the under surface towards the stigma.

This species is a native of the East Indies. It has become naturalized in this Island, and is to be met with in almost every cane-piece interval, and by every road-side. The flowers resemble those of some species of *Lupin*, and are by no means unornamental. The figure in the Botanical Magazine is very good, except that the standard is of deeper blue than what is there represented.

## 2. *Crotalaria retusa*. *Wedge-leaved Rattle-wort*.

Stipules short setaceo-subulate straight, leaves oblong wedge-shaped retuse very minutely pellucidopunctate, raceme terminal, ovary glabrous.

Tandale-Cotti, *Rheed. Mal.* IX. t. 25.—*Crotalaria major*, *Rumph. Amb.* V. t. 96. f. 1.—*C. retusa*, *Linn. Sp.* 1004.—*Bot. Reg.* 253.

HAB. Common.

FL. Principally towards the end of the year.

This is a native of the East Indies. It has, however, become very common, and may be met with in every part of the Island. The flowers are of a yellow colour, large, and showy, and, were it not that the plant is so common, would be thought beautiful. The standard is internally striated with purple, and externally of a brownish tinge approaching to tawny. The leaves are puberulous with appressed hairs beneath; and the awn at the apex is in general retuse.

CROTALARIA LESCHENAUULTII, with leaves and flowers very much resembling those of the present species, but larger, grows wild in the neighbourhood of the Botanic Garden, St Andrew's:

and *CROTALARIA QUINQUEFOLIA*, also with yellow flowers, is naturalized in the neighbourhood of the Botanic Garden at Bath, St Thomas in the East.

### 3. *Crotalaria fruticosa*. *Shrubby Rattle-wort*.

Stipules attached only to the upper leaves lanceolato-falciform decurrent, leaves lineari-lanceolate villous with appressed hairs, stem suffruticose, racemes opposite to a leaf and subterminal about 3-flowered.

*De Cand. Prod.* II. 135?—*Mill. Dict.* No. 4.

HAB. Port-Royal, St Andrew's, and St John's Hills.

FL. Autumn.

Suffruticose, seldom more than a foot in height, subdivided, subterete, villous with appressed hairs. Nerves of the leaves scarcely perceptible. Stipules only attached to the leaves at the ends of the branches, lanceolate, acute, decurrent along the stem. Raceme more or less elongating as the pods ripen: peduncle subterete, villous: pedicels short with a linear bractea at the base; flowers of an obscure greenish-yellow, with a pair of linear bracteoles close to and appressed to the calyx. Calyx persistent, hairy; segments lanceolate. Standard roundish, subcordate, bicallose at the base, greenish-yellow, striated, with parallel purple lines; wings small; keel open beneath near the base, somewhat spirally twisted towards the apex. Filaments free for half their length. Ovary glabrous, geniculated at the style, which is barbato-puberulous towards the obtuse stigma. Legume rather more than an inch in length, black, hoary, many-seeded: seeds shining reniform.

This is not a very attractive species, and, from its narrow leaves resembling those of the grass among which it grows, it is apt to be overlooked. The flowers also are obscure.

### 4. \* *Crotalaria lotifolia*. *Lotus-leaved Rattle-wort*.

Leaves 3-foliolate, leaflets oblongo-cuneiform emarginate glabrous, peduncles axillary solitary 1-flowered, legumes sessile.

*C. trifolia fruticosa*, foliis glabris, flore e luteo viridi minore, *Sloane*, II. 33. t. 176. f. 1, 2.—*C. lotifolia*, flore parvo variegato, *Dill. Elth.* 121. t. 102. f. 121.—*C. lotifolia*, *Vahl. Eclog.* II. 54.

HAB. A wood between the Town Savannah and Two-Mile Wood.

FL. — ?

*Sloane* appears to be the only Botanist who has found this plant in Jamaica. He describes it as shrubby, 3 or 4 feet high,



subglabrous, branched. Leaves  $\frac{3}{4}$ ths of an inch long and half as broad, glabrous, with the middle leaflet the largest. Flowers of a dirty yellow, shortly peduncled. Legumes an inch in length, brown, narrow towards the footstalk, 5-6-seeded. seeds small, compressed, making a noise in the pod.

According to Vahl, the leaves are subsericeous beneath.

### 5. *Crotalaria striata*. *Striated Rattle-wort*.

Stipules none, leaves 3-foliate, leaflets elliptic obtuse mucronate subglabrous above puberulous with appressed hairs beneath, racemes terminal, bracteas setaceous deciduous, petals streaked, legumes pendulous cylindrical glabrous, stipes very short.

*C. Brownei*, *Bertero*, *De Cand. Prod.* II. 130.—*C. Striata*, *De Cand. Prod.* II. 131.—*Hooker*, *Bot. Mag.* 3200.

HAB. Common, especially along the roads in mountain districts.

FL. October—December.

Suffruticose, about 4 feet in height, erect, not much branched, terete, striated, more or less coloured, minutely puberulous. Leaflets shortly petiolulated, elliptic, acute at the base, subulato-mucronate, glabrous, light green above, minutely puberulous with appressed hairs and paler beneath, about equal in length to the petiole. Racemes simple, subterminal, sometimes a foot in length, the middle florets only fertile. Rachis angulose, puberulous: pedicels short, terete, pruinose, recurved, furnished at the base with subulato-filiform early deciduous bracteas. Flowers numerous, drooping. Calyx puberulous; lower lip 3-partite, the middle division elongato-lanceolate; the upper 2-fid, lanceolate, recurved. Petals thrice as long as the calyx, yellow, veined with brownish purple: standard broadly oblong, reflexed; wings subfalcate, bluntish, not half the length of the keel, which is about the same length as the standard, and very much acuminate. Ovary whitish, puberulous. Legume an inch and a half in length, bearing the persistent style as a beak. Seeds reniform, numerous.

This is a very common weed, and springs up in the greatest abundance, towards Autumn, along the mountain roads. The leaves retain the drops of moisture for some time after the rain, and is a subject of annoyance to passengers in paths which are but little frequented, and where it is allowed to encroach undisturbed. It has hence received the name of the *Water-bush*.

There is a very good figure in the Botanical Magazine, taken from a plant raised from seed sent from the Mauritius. According to De Candolle, it is a native of the East Indies. It is difficult to say whether it was originally indigenous to this



Island. No plant, however, can be more generally diffused. The *C. BROWNEI*, of Bertero, is the plant before us.

### 6. *Crotalaria incana*. *Hoary Rattle-wort*.

Stipules and bracteas setaceous villous deciduous, leaves 3-foliate, leaflets elliptic or obovate villous beneath, racemes opposite to a leaf spiked, calyces somewhat glabrous, keel tomentose at the margin, legumes sessile pendulous hirsute.

*Crotalaria trifolia fruticosa*, foliis rotundis incanis, floribus e viridi luteis, fructu pubescente, *Sloane*, II. 34. t. 179. f. 1.—*C. incana*, *Linn. Spec.* 1005.—*Jacq. Obs.* IV. t. 82.—*Cav. Ic.* IV. t. 322.—*Swartz, Obs.* 278.

HAB. A common weed.

FL. Autumn.

Suffruticose, erect, 2–4 feet in height: branches few, subterete, striated, incano-villous. Leaflets, the terminal one the largest, elliptic or obovate, rounded and apiculato-mucronate at the apex, subglabrous above, slightly villous along the nerves beneath. Stipules capillari-setaceous: stipels ○. Raceme opposite to a leaf, 5-flowered: common peduncle terete, incano-villous: pedicels short: bracteoles setaceous, deciduous, situated below the calyx: flowers greenish yellow. Calyx subglabrous; segments lanceolate. Keel of the corolla with the edge albido-tomentose. Filaments monadelphous, with the sheath slit open above. Ovary oblong, densely incano-villous: style geniculated with a sharp bend near its origin from the ovary, with the under surface pubescent as it approaches the stigma: stigma subcapitate and farinoso-puberulous. Legume an inch and a half in length, beaked with the persistent geniculated portion of the style: seeds numerous, subreniform, compressed, of a yellowish clay-colour, shining.

## IV. ULEX.

Calyx bibracteolated; upper lip 2-, lower 3-toothed. Stamens monadelphous. Legume turgid, scarcely longer than the calyx.

### 1. *Ulex Europæus*. *Common Furze*.

Erect, leaves and branchlets somewhat villous, teeth of the calyx connivent, bracteas ovate loose.

*Smith, Engl. Bot.* t. 742.—*De Cand. Fl. Fr.* IV. 492.

HAB. High mountains. Very common in the neighbourhood of St Catherine's Peak.

FL. Throughout the year.

This plant has become completely naturalized, and is very common in certain situations. It has been cultivated in Europe, planted on a raised bank, for the purpose of forming fences, It is also sown in fields, and the branches, having been cut down about the second year, and passed between rollers to bruise the woody fibres and spines, are given as green food to cattle. It may be well to bear this in mind, as it has been found to be very nutritive, and grows freely in elevated situations where the Guinea-grass either does not succeed, or is found to yield very little nourishment.

The Broom, *CYTISUS SCOPARIUS*, although it may be met with growing wild, has not succeeded so well as the Furze, and I have never observed it in blossom or fruit.

## V. TRIFOLIUM.

Calyx tubulose, 5-fid, persistent. Stamens diadelphous. Legume (in general) shorter than the calyx, ovate and 1-2-seeded, or oblong and 3-4-seeded.

*Name*, from *τριφυλλον* *three-leaved*.

### 1. *Trifolium repens*. *White or Dutch Clover*.

Stem creeping, leaflets obovato-subrotund subretuse denticulated, stipules lanceolate scariose, peduncles long axillary, flowers pedicelled deflected after the anthesis, legumes 4-seeded.

*Engl. Bot.* 1769.—*De Cand. Prod.* II. 198.

HAB. Common in mountain pastures.

FL. Throughout the year.

### 2. *Trifolium filiforme*. *Slender Yellow-flowered Trefoil*.

Stem diffuse, leaflets obovate or obcordate subdenticulated, stipules broad ovate, peduncles long, flowers subumbellated sessile, legumes 1-2-seeded substipitate.

*Engl. Bot.* 1257.

HAB. Road sides and stony places in the mountains, common.

FL. Throughout the year.

## VI. INDIGOFERA.

Calyx 5-fid, with the lobes acute. Standard rounded, emarginate. Keel furnished on both sides

with a subulate spur, at length frequently elastically deflected. Stamens diadelphous. Style filiform, glabrous. Legume subterete or plane or tetragonal, many-seeded, 2-valved, rarely few-seeded and ovate, or 1-seeded and subglobose : seeds ovate, truncated at both ends, frequently separated by cellulose isthmi.—*De Cand.*

Herbaceous or suffruticose plants. Stipules distinct from the petiole, small. Peduncles axillary. Flowers racemose, purple, blue, or white. Leaves simple, impari-pinnate, or digitate. Hairs generally strigose and appressed.—*Name*, from INDICUM, a plant, described by Pliny, as brought from India, and FERÖ, *to bear*.

### 1. *Indigofera argentea*. *Silvery-leaved Indigo*.

Fruticose, branches terete silky-whitish with an appressed pubescence, leaflets 1–2-paired obovate sericeo-pubescent, racemes shorter than the leaf, legumes pendulous subcompressed torulose canescent 2–4-seeded.

I. *articulata*, *Guoan*, *Ill.* 49.—I. *glauca*, *Lamarck*, *Encycl.* III. 236.—I. *tinctoria*, *Forsk. descr.* 138.

HAB. Cultivated.

FL. Throughout the year.

This species of Indigo was formerly a common weed in the Botanic Garden at Bath. It is cultivated, in Egypt and Barbary, for the manufacture of Indigo. The grain of the fecula, procured from it, is said not to be so large as in the other sorts ; but the plant itself is more hardy, and resists better the attacks of insects, and effects of heavy rains.

### 2. *Indigofera Anil*. *Wild Indigo*.

Stem suffruticose erect, leaflets 4–5-paired oblong acute at the base rounded and mucronate at the apex appresso-puberulous especially beneath, racemes axillary shorter than the leaves, legumes arcuate deflected 3–6-seeded.

HAB. Common every where.

FL. Throughout the year.

A shrub, 4–12 feet in height, erect : branches towards their extremities anguloso-sulcated, incano-puberulous with minute appressed reverted hairs. Leaflets petiolulated, 5-paired with an odd one, obovato-oblong, mucronate, subglabrous and of a

pale green above, subincano-puberulous with appressed hairs beneath. Stipules setaceo-subulate. Racemes axillary. Legumes  $\frac{3}{4}$ ths of an inch in length, deflected, arcuate, terete, torulose, 3-6-seeded; the under suture marked with an obscure callous ridge.

This is one of the most common plants in the Island, abounding especially in river courses, and dry gravelly situations.

### 3. *Indigofera tinctoria*. *Frank Indigo*.

Stem suffruticose erect, leaflets 4-5-paired elliptic subacute at the base rounded and mucronulated at the apex appresso-puberulous, racemes shorter than the leaves, legumes arcuate deflected 10-seeded.

*Colutea affinis fruticosa*, siliquis falcatis *Sloane, Jam. II. t. 179. f. 2.*—*Indigofera assurgens*, siliquis arcuatis, *Browne, 302.* *I. Sumatrana*, *Gærtn. Fruct. II. 317. t. 148.*—*I. tinctoria*, *a*, macrocarpa, *De Cand. Prod. II. 224.*

HAB. Common in Liguanea.

FL. Throughout the year.

A shrub, seldom more than 2 feet in height: branches spreading, subflexuose, angulose and appresso-puberulous towards their extremities. Leaflets 4-5-paired with an odd one, petiolulated, elliptic, acute at the base, rounded and apiculated at the apex, appresso-puberulous especially beneath. Stipules small, subulate. Racemes axillary, not half the length of the leaf. Flowers pedicelled, furnished at the insertion with a small subulate bractea. Calyx 5-dentate; the two upper teeth more widely apart than the rest. Standard ovali-rounded, apiculated, not emarginate, tinged with vermilion colour internally, minutely ciliated and appresso-puberulous externally: wings shorter than the keel, of a vermilion colour, minutely ciliated: keel concave, greenish, minutely ciliated. Legume upwards of an inch in length, arcuate, terete, appresso-pubescent, with the sutures, when dry, callous and slightly prominent: seeds 10.

This is a very distinct species from the preceding. It abounds more in the dyeing principle, and is therefore the one generally selected for cultivation.

The *Guatemala* indigo plant, *I. DISPERMA* of some authors, but considered by De Candolle as only a variety of the present species, though formerly cultivated, is not now to be met with in this country.

### 4. *Indigofera mucronata*. *Trailing Indigo*.

Suffrutescent angulose as well as the petioles and leaflets appresso-hispidulous, leaflets 2-paired oblongo-ovate mucronate pale beneath, racemes peduncled



longer than the leaves, legumes reflected slightly curved tereti-tetragonal mucronate appresso-hispid many-seeded.

*De Cand. Prod.* II. 227.

HAB. Common Port-Royal and St Andrew's mountains.

FL. Throughout the year.

Suffruticose; branches long, virgate, trailing, supported on neighbouring shrubs, angulose, hispidulous with appressed hairs. Leaflets petioluled, 2- rarely 3-paired with an odd one, oblongo-ovate, mucronate, hispidulous with appressed hairs, hoary beneath: petiole terete. Racemes axillary, solitary, elongating as the fruit begins to form, so as to exceed the leaf in length. Flowers alternate, shortly pedicelled, furnished with a minute subulate ciliated bractea at the insertion. Calyx externally hispidulous, 5-fid; lobes acute. Standard rounded, internally vermilion-coloured, externally pale and puberulous with a longitudinal green mid-nerve: wings acinaciform, minutely ciliated at the apex: keel white, with the upper edge tinged with red, and ciliated. Stamens 9 and 1. Ovary linear, minutely appresso-puberulous: style filiform: stigma subcapitate. Legume nearly 2 inches long, tereti-tetragonal, subulate at the apex, appresso-hispidulous, slightly curved, many-seeded.

This species appears to have been first detected by Bertero, during his visit to this Island. As the leaves are very thin, and the plant grows in thickets, it is not likely that it will be found adapted for the purposes of the Indigo grower.

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In the cultivation of the Indigo plant, the best time, for ploughing or preparing the land, is immediately after the October rains. It has been found that sowing broad-cast succeeds better than in drills. A bushel of seed will plant from six to eight acres. In the course of a few days the young plants come up; soon after which they ought to be cleaned and moulded. As the plant grows wild in river courses and in dry gravelly situations, a soil of a similar character is found the best adapted for its cultivation. The rains ought also to be light and seasonable, and it is of importance that they should fall immediately after the young plants show themselves above ground, in order that they may be invigorated, and enabled to resist the attacks of the numerous insects to which they are, at this period of their growth, exposed. From this time little rain is required, except immediately after the branches have been cut; at these periods a shower is of great service enabling the plants to send out new and vigorous shoots. A wet climate indeed is not at all suited to the cultivation of the Indigo. It is true that the plant may grow luxuriantly, but the juices are watery, and the produce



obtained is small in quantity, and inferior in quality. Besides, as Indigo contains an immense proportion of carbon, and, as it is a well established fact in Vegetable Physiology, that it is not secreted by plants in the shade, but only when they are exposed to the direct influence of the sun's rays; it is evident, that Indigo requires much and continued sunshine to render its juices rich in this principle.

The proper period for cutting the plant is previous to flowering. The leaves at this time change from a light to a dark green, and, according to the French indigo planters, they crack when they are squeezed. It is of importance to determine the exact time when the plant comes to this state, since the branches, if they are prematurely cut, would be deficient in the quantity of the produce, and the quality would be inferior.

The Indigo plant is retained in cultivation for a year, during which period it yields three or four cuttings. The Indigo obtained from the first cutting is the greatest in quantity, and is of the finest quality. The succeeding cuttings become gradually less productive, so that one part of the first, yields as much as two parts of the second cutting.

There are several methods employed in the manufacturing of Indigo. The 1st. is styled the *fermenting process*, and is that which was formerly practised in this country, when Indigo was generally cultivated. The branches, having been cut by means of a sickle, are placed, with the stalk upwards, in the steeping vat, till it is nearly three parts full. This vat is a large cistern of mason work or wood, about 16 feet square. It is then filled with water, and to prevent the branches from floating, they are kept down by means of rails loaded with planks. Soon after, the fermentation commences, and goes on till, in 24 hours, the contents of the vat are so hot, that the hand cannot be retained in it. The water gradually becomes opaque, and assumes a green colour; bubbles of carbonic acid gas are emitted, and a smell, resembling that of volatile alkali, is exhaled. When the fermentation has gone on sufficiently far, the liquor must be immediately let into the second cistern: for, were it to be allowed to remain after a certain time in the fermenting vat, the pigment would be spoiled; and if, on the other hand, it were drawn off too soon, much of the Indigo would be lost. This second vat, which is lower than the first, is called the battery, and is commonly in size about 12 feet square, and  $4\frac{1}{2}$  feet deep. Here, the liquor is agitated and beaten up, to perform which a variety of machines have been invented. The best adapted for the purpose is one with paddles, resembling those of a steamboat, put in motion by means of a horse or mule. The effect of this agitation is, that the liquor will become as if curdled, and the indigo will be observed to separate into flakes. The manufacturer ascertains when the agitation is carried sufficiently far, by examining from time to time a small portion

on a white soup plate. A quantity of lime water is now added, and the blue floccules are allowed to subside. The clear water is then drawn off by plugs placed at different heights in the cistern, and the sediment is drained in sieves made of horse hair. It is after this put into coarse linen bags, and having remained for some time suspended in the shade, is subjected to pressure in order to get rid of as much of the moisture as possible. Lastly the Indigo, having been converted into a stiff consistent mass, is cut into small squares, and allowed to dry in the shade.

The 2nd method of manufacturing Indigo is known by the name of the *scalding process*. It appears to be a revival of the ancient Indian mode, as practised at Ambore, and described by Col. Martine in the third volume of the Asiatic researches. He there mentions, that the natives boil the plant in earthen pots of 18 inches diameter, till the colouring matter has been extracted: it is then removed into larger jars, and agitated by means of a bamboo, until a granulation of the fecula takes place. A precipitant of red earth and water is then added, and the fecula is allowed to subside. The clear liquid is lastly drawn off, and the Indigo is dried in small bags suspended in the shade.

The modern process is conducted on similar principles. Large coppers are about two-thirds filled with the branches of the Indigo, which are not to be pressed down. Cold water is then added to within a few inches of the brim, and the fire is lighted and kept up rather briskly, till the liquor acquires a deep green colour. During this part of the process, the mass must be constantly stirred, otherwise the bottom will be over-scalded before the surface is ready. The fire is now to be withdrawn, and the liquor passed through a hair-cloth into the beating vat, where it must, while still hot, be agitated in the common way for half an hour. Lime water is now to be added, and after standing for about two hours and a half, the supernatant liquor, which is of a Madeira wine colour, is to be drawn off. The rest of the process is similar to that followed in preparing common fermented Indigo.

The advantages of the scalding over the fermenting process, are, according to Dr Roxburgh, that:—1. The produce is larger. 2. The health of the labourers is not endangered by the noxious effluvia, as is the case in the fermenting process. 3. Much less agitation, and very little precipitant is necessary. 4. The operation may be performed several times in the course of the day. 5. The Indigo dries quickly, without acquiring a bad smell. 6. Indigo so prepared has not the flinty appearance common to fermented Indigo, but in softness and levity is equal to Spanish *flora*.

The 3d manner of manufacturing Indigo is called the *dry process*, and is that at present followed in the large factories in the southern provinces of India. It is described at great length

by Charles H. Weston, Esq., in the *Quarterly Journal*. According to this writer, the branches are cut early in the morning, and spread out in the sun. In the afternoon, the leaves are so dry, that they are easily separated from the branches by simply beating them with a stick. After this they are collected and closely packed in warehouses, and trodden down. As they are not immediately used, but are kept for some time, it is of importance that there be no dampness, as otherwise fermentation would ensue, and their value be destroyed. When the leaves have been kept about a month, their colour is found to have changed to a pale lead colour, which afterwards passes into black. It has been ascertained, that the maximum quantity of indigo is obtained when the leaves have acquired the lead colour, and that the colouring matter is only sparingly given by the fresh green leaves, or when they have passed to the opposite extreme, and acquired the black colour.

After the leaves have been kept a sufficient time, they are transferred to the steeping vat, which is an uncovered reservoir, built of brick work, and lined with Roman cement, or stucco prepared from burnt shells, and filled with water. They remain there for two hours, and are every now and then turned; after which, the water having acquired a fine green colour, is run off, and passed through strainers into the beating vat. Two hours may appear to be a very short time for infusing the leaves. It has been found, however, that when the process is prolonged beyond this, a partial precipitation of the Indigo takes place.

The liquor, when in the beating vat, is agitated by paddles for about two hours, during which the fine green colour gradually darkens, and acquires a blackish blue. As soon as this last hue appears, and the froth thrown up in beating becomes more or less white, and the incipient separation of the particles of Indigo can be detected, a certain proportion of lime water is well mixed with the liquor, and the whole is allowed to settle. In the course of three hours the indigo will have fallen to the bottom, and the supernatant liquid, which ought to be of a fine Madeira colour, is allowed to run off by means of cocks, placed at different heights. The indigo is, after this, conveyed into the covered part of the laboratory, where it is spread on strained cloth, and allowed to drain.

On the following morning, the Indigo is put into a copper, with a quantity of hot water, and fire is applied. As the mass heats, a quantity of scum rises, which is immediately removed, and, as soon as the whole is brought to the boiling point, the fire is withdrawn. The Indigo is then again taken to the strainers, and having been again drained, it is well worked with the hands, and afterwards subjected to pressure in square boxes, in order to get rid of as much moisture as possible. In this manner large square cakes, about  $2\frac{1}{2}$  inches in thickness, are

formed, which are subsequently divided into smaller cakes, and allowed to dry gradually in the shade.

The boiling process, although not generally adopted, is said to improve very considerably the quality, and enhance the value of the produce.

A beautiful yellow precipitate may be obtained, by means of acetate of lead, from the Madeira-coloured liquid, drawn off in the beating vat. This is said, by Mr Weston, to promise to supply a great desideratum—a permanent yellow dye. Experiments are, however, wanting to confirm this.

Indigo in the prepared state is of a rich blue colour, which varies, however, in its shade in different specimens. When pure it is light and friable; tasteless, and almost devoid of smell; of a smooth fracture: insoluble in water or alcohol, but soluble in sulphuric and nitric acids. Some varieties, such as that known among the Spaniards by the name of *flora*, is lighter than water; and the lightest is generally the purest. The analysis of M. Chevreul gives, as the composition of Indigo, a blue colouring principle called *Indigotine*, a red resin, a greenish-red matter, united to the sub-carbonate of lime, alum, silica, oxyd of iron, and some other salts. According to Dr Ure, the ultimate constituents of pure *Indigo-blue*, are—

Carbon, -	-	-	-	-	71.37
Oxygen, -	-	-	-	-	14.25
Azote, -	-	-	-	-	10.00
Hydrogen, -	-	-	-	-	4.38

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100.00

Indigo is frequently adulterated, by gummy, resinous, and earthy substances being added to it; and its weight and purity are also affected by using lime in excess as a precipitant. Dr Bancroft proposed, as a test to ascertain the relative values of different specimens of Indigo, to dissolve equal portions of each in sulphuric acid, so as to form the mixture known by the name of *liquid blue*, and, after diluting with a certain quantity of water, to compare the shades of colour possessed by the several mixtures.

Indigo is the most valuable and permanent of all the dye-stuffs. It is also made use of by painters in water-colours.

The method of preparing Indigo, and of applying it to the purposes of dyeing, appear to have been very early known in India. Dr Bancroft\* has shown that the *indicum* of Pliny (lib. xxxv. c. 6.) possessed similar properties with the modern Indigo. It would appear, by a passage in Capenarius, quoted by the same author, that, in the 15th century, the Venetians were in the habit of receiving Indigo from the East by the way of Alexandria. After the discovery of the passage to India

\* Philosophy of Permanent Colours, vol. i. p. 242.



by the Cape of Good Hope, the Dutch are supposed to have been the first, about the middle of the 16th century, to import it direct into Europe. It was long, however, ere it came into general use as a dye, and there appears to have existed against it a very unaccountable prejudice. It was considered to be a kind of stone, and was prohibited in England during the reign of Queen Elizabeth, and also in Saxony by the Elector, who described it in his edict as a corrosive substance, and fit food only for the devil. Soon after this its importance came to be understood, and the cultivation of the plants which yield it was introduced into the West Indies, and into Mexico, and followed up with such success, that the market of Europe was for a long time principally supplied from these countries. A large proportion was furnished by Jamaica, and the remains of Indigo works may now be met with in different parts of the country. In 1672, according to Edwards, there were 60 Indigo works, producing 50,000 lbs. annually. A tax, however, of 3s. 6d. per lb. having been imposed by the British parliament, the cultivation was soon after, in a great measure, abandoned; and although the duty was soon after removed, and a bounty of sixpence per lb. offered, if imported directly into Great Britain, still it never again became general, and at present, I am not aware, that it is produced in any quantity, or that there is a single Indigo work, deserving the name, in the Island. In the East Indies, on the contrary, the cultivation of late years has rapidly increased, so as to supply 3-4ths of the Indigo for the European market.

It is to be hoped, as few articles give a more profitable return for the capital embarked, that its cultivation among us may be resumed, especially as, from the improvements in the manufacture, the unhealthy fermenting process, which was found so fatal to the labourers employed, may now be dispensed with. An attempt was made, some years ago, by the late Mr Robert Gray, of St George's, to introduce the cultivation on his own property in that parish; but he did not succeed, owing to the excessive rains which fall in that district during almost every period of the year. The like ill success, and from a similar cause, has attended an attempt lately made on Greenwich Hill estate, in Manchioneal. The result would be different were a proper choice of climate and soil observed, such as the plains of Vere or Liguanea, where the rains are occasional, and seldom heavy, and the soil light and open.

The medicinal uses of the Indigo are few. A decoction of the root, used as a lotion, effectually destroys vermin, and is very generally employed for that purpose in the country. The juice of the young branches, mixed with honey, is recommended as an application for aphthæ of the mouth in children: and the Indigo, in powder, sprinkled over foul ulcers, is said to cleanse them. The disease in poultry, known by the name of *yaws*, is



cured by the application of a solution of Indigo by means of a rag.

## VI. CLITORIA.

Calyx bibracteolated at the base, 5-fid. Standard of the corolla large. Stamens diadelphous, inserted with the petals not at the bottom, but above the base of the calyx. Style subdilated at the apex. Legume linear, compressed, straight, bivalve, acuminate with the base of the style, 1-celled,  $\infty$ -seed. Seed generally intercepted by cellulose isthmi.—*De Cand.*

Scandent plants; leaves trifoliate; flowers axillary.

### 1. *Clitoria Virginiana*. *Common Pea-flower*.

Stem glabrous or subpuberulous, leaflets hispidulous with minute uncinat hairs especially above, peduncles 1-4-flowered, bracteoles ovate acuminate about the length of the calyx, standard spurred, legumes linear compressed.

*Swartz, Obs.* 282.—*De Cand. Prod.* II. 234.

HAB. Common, especially on fences and in thickets.

FL. July—November.

Stem twining, filiform, striated, subglabrous. Leaflets, ovato-oblong, mucronate, hispidulous, especially above, with minute uncinat hairs, nerved. Peduncles axillary, usually two together, of which one is short and 1-2-flowered; the other longer and 2-8-flowered. Bracteoles close to the flower, ovate, acuminate, slightly longer than the upper, but rather shorter than the lower lip of the calyx. Calyx externally hispidulous and ciliated with minute hooked hairs; upper lip 2-fid with the divisions approximating; lower lip 3-fid with the divisions lanceolato-subulate, and the middle one the longest. Standard large, roundish, emarginate, of a purple colour, marked with a yellow spot in the centre, minutely hispidulous externally. Ovary subtetragonal, sulcated, glabrous: style, dilatato-expanded towards the stigma. Legume about  $3\frac{1}{2}$  inches long, straight, linear, compressed, beaked with the persistent style, of a black colour, glabrous: seeds about 18, yellowish.

There are, according to De Candolle, three varieties of this species; 1. *angustifolia*, with linear or lineari-lanceolate leaves; 2. *elliptica*, with ovato-oblong or elliptic; and 3. *ovata*, with ovate. This plant is very common in all parts of the Island. It is also indigenous to Virginia, Carolina, St Domingo, and Porto-Rico.

2. *Clitoria Plumieri*. *Large Pea-flower*.

Stem hispidulous, leaflets ovate slightly hispidulous, peduncles 2-6-flowered, bracteoles ovali-subrotund longer than and concealing the calyx, standard spurred, legumes linear subtetragonal.

*C. major*, Browne, 298.—*C. Plumieri*, Pers. *Ench.* II.—*Bot. Reg.* t. 268.

HAB. Common on Fences.

FL. September—January.

Twining, hispidulous or subglabrous. Leaflets, ovate, acuminate with the apex mucronate, sparingly hispidulous, nerved and veined. Stipules oblong, marescent: stipels linear, acute. Peduncles axillary, 2-6 flowered, flowers shortly pedicelled. Bracteoles longer than and concealing the calyx, ovali-subrotund, concave, longitudinally striatulated, submembranaceous. Calyx with the upper lip obscurely bifid as if emarginate; the lower 3-fid with the middle lobe produced. Standard large, subrotund, emarginate, white stained with deep bright purple and streaked in the centre with yellow, externally puberulous: wings stained with purple towards the apex. Ovary linear, compressed, sulcated: style expanded towards the stigma, Legume twice the size of the *C. VIRGINIANA*, about 6 inches long, and  $\frac{1}{3}$  of an inch broad, linear, compressed, subtetragonal with the sides of the valves deeply sulcated, subulato-attenuated (for an inch in length) at the apex, about 12-seeded.

This is a beautiful species. The flowers are large (twice the size of those of *C. VIRGINIANA*), and of a very bright purple. They are commonly called the *fee-fee*, from the noise made by the negro children in blowing through the flower.

3. \* *Clitoria glycinoides*. *Hirsute Clitoria*.

Stem hirsute, leaflets ovato-elliptic mucronate glabrous above hairy along the nerves beneath, racemes peduncled longer than the petiole few-flowered, calyx appresso-villous, standard destitute of a spur.

*De Cand. Prod.* II. 234.

HAB. Neighbourhood of Savannah la Mar.

FL. Autumn?

I have seen specimens of this plant sent by Dr Distin from the above locality.

## VIII. GALACTIA.

Calyx bibracteolated, 4-fid; segments acute, subequal. Corolla papilionaceous, with the petals 5, ob-

long, distinct; standard broader than the rest, incumbent. Stamens diadelphous. Style glabrous: stigma obtuse. Legume terete or compressed, many-seeded, 2-valved, 1-celled, elongated.—*De Cand.*

Suffruticose or herbaceous twining plants: leaves imparipinnate, 1- $\infty$ -jugate; racemes axillary.—*Name*, from *γαλα milk*, the species about to be described, being milky in all its parts.

### 1. *Galactia pendula*. *Pendulous Galactia*.

Branches pubescent, leaflets ovato-oblong with the apex rounded or emarginate apiculated glabrous above pubescent beneath, racemes longer than the leaf, flowers in pairs pendulous, petals four times the length of the calyx.

*Phaseolus minor latescens*, flore purpureo, *Sloane*, I. t. 144. f. 4.—*Galactia*, *Browne*, 298. t. 32. f. 2.—*Clitoria Galactia*, *Linn. Spec.* 1026.—*Lun. Hort.* I. 103.—*Galactia pendula*, *Ker. Bot. Reg.* t. 269.

HAB. Common in the plains and lower hills.

FL. August—October.

Suffrutescent, twining; towards the extremities of the branches terete, incano-pubescent. Leaves imparipinnate, one-paired; middle leaflet the largest, ovato-oblong, obtuse or emarginate, apiculate, glabrous above, pubescent beneath: petiole short, terete, pubescent. Stipules setaceous: stipels subulate, glandulose. Racemes axillary, many times longer than the leaf, sub-simple: common peduncle angulose, pubescent: pedicels 2-4 together, filiform, pubescent, inserted on a tumid globular receptacle, furnished at the base with a small ovato-lanceolate bractea. Flowers showy, crimson. Calyx externally puberulous, purpurascent, 4-fid; the 2 lateral segments rather smaller. Petals as in the generic character. Ovary linear oblong, sericeo-villous. Legume 4-5 inches long, villous, shape of an *Italic f*, subterete, compressed: seeds enclosed in the thin diaphanous membrane of the endocarp, ovato-subrotund, compressed.

This plant ascends to a considerable height, partly by twining, and partly by supporting itself on neighbouring shrubs and trees. The flowers are rather beautiful. In England it is propagated by cuttings in sand under a bell-glass. In the wild state, it is principally to be found in limestone districts.

## IX. TEPHROSIA.

Calyx ebracteolated, subequal, 5-dentate, Standard of the corolla large, subrotund, externally seri-

ceous or pubescent, patenti-reflected, adhering to the obtuse keel. Stamens variously connected, monadelphous, or diadelphous with the upper filament slightly adhering. Style filiform: stigma terminal. Legume generally sessile, compresso-plane, linear, many-seeded, with the valves plane: seeds compressed.—*De Cand.*

Shrubs or herbaceous plants not twining. The above character, so far as the calyx is concerned, does not apply very accurately to our Jamaica species.—*Name*, from *τεφεος* ash-coloured, in allusion to the prevailing colour of the foliage.

### 1. *Tephrosia toxicaria*. *Surinam Poison*.

Suffruticose erect, leaflets 14–20-paired lineari-oblong apiculate pubescent above argenteo-sericeous with appressed hairs beneath, racemes terminal, legumes linear-subterete velutino-villous shortly mucronate 10-seeded.

*Galea toxicaria*, *Swartz*, *Prod.* 108.—*Fl. Ind. Occ.* 1278.  
*Tephrosia toxicaria*, *Pers. Ench.* II. 328.

HAB. Cultivated: rarely found wild.

FL. Throughout the year.

An erect shrubby plant, 4–5 feet in height: extremities of the branches anguloso-sulcated, rufescenti-velutine. Leaflets petiolated, nearly 2 inches in length, and 4 lines broad. Stipules subulate,  $\frac{1}{3}$  of an inch in length. Racemes terminal: rachis 3-gonal, velutine. Flowers shortly pedicelled, in clusters of 4–6, white with a purplish tinge. Calyx sub-bilabiate; upper lip 2-fid; under lip 3-partite as far as the middle; divisions acute. Standard externally rufescenti-sericeous. Stamens sub-monadelphous, *i. e.* the 10th stamen adhering to the rest for only a short distance above the base. Legume sessile, 2–3 $\frac{1}{2}$  inches long: seeds oblong, light brown variegated with black.

This plant is said to have been originally brought from Surinam, or, what is more probable, from Africa. It is very generally cultivated, and may occasionally be met with growing wild. It is employed for the purpose of poisoning fish in rivers. The young branches with the leaves pounded, and sometimes mixed with quicklime, are thrown into a pool, or, in the language of the country, blue-hole of some mountain stream, and have an almost immediate effect. The fish are observed to become stupified, and as it were intoxicated, and to rise to the surface, floating there with their belly upwards, so as to be readily taken by the hand. It has been remarked,



that the larger fish recover gradually from the effects of the poison, but that the younger fry perish. The practice has therefore been generally discountenanced, and has very properly been prohibited, under severe penalties, by legislative enactment. Experiments are wanting to determine, what effect would be produced on the human system by the administration of this plant internally. It has been suggested that it would probably resemble *Digitalis* in its action, and might prove, in a climate where that plant does not grow, a desirable substitute. It may be mentioned, that the roots of *TEPHROSIA LEPTOSTACHYA*, and the leaves of *T. SENNA*, are purgative. It is probable, therefore, that the plant before us may act as an evacuant, combined with some peculiar depressing influence on the nervous system.

## 2. *Tephrosia procumbens*. *Procumbent Tephrosia*.

Suffrutescent, branches procumbent, leaflets 4-5-paired with an odd one ovato-oblong apiculated appresso-pubescent beneath, racemes opposite to a leaf elongated, legumes erect pubescent about 10-seeded.

Galea, No. 2. *Browne*, 289.—*Tephrosia cinerea*, *Pers. Ench.* II. 328?

HAB. Savannahs in the neighbourhood of Kingston.

FL. October—January.

Suffrutescent: branches a foot or more in length, lying along the ground, subsimple, subtetragonal and appresso-pubescent towards their extremities. Leaflets 4-5-paired with an odd one, obovato-oblong, or cuneato-oblong, subglabrous above, appresso-pubescent and of an ash-colour beneath. Stipules  $\frac{1}{4}$  of an inch in length, lanceolato-subulate. Racemes opposite to a leaf, 6 inches in length, simple: peduncle compressed, angulose, pubescent. Flowers rather large, resembling those of *T. ROSEA*, showy, rose-coloured, shortly pedicelled, 3 together, furnished with 3 lanceolato-subulate bractees at the insertion. Calyx externally sericeo-puberulous; upper lip bipartite for half the length, with the divisions setaceo-attenuated, approximating; lower lip 3-partite for more than half the length, with the divisions setaceo-attenuated and the middle one somewhat longer than the others. Standard externally sericeo-pubescent. Stamens submonadelphous; tube of the filaments slit up on the upper surface, with the 10th slightly cohering to one of the edges. Ovary linear, compressed, puberulous: style curved: stigma obtuse, ciliated. Legume 2 inches in length, linear, compresso-plane, pubescent, incurvato-mucronate with a persistent portion of the style at the apex: seeds 10, slightly compressed, variegated.



### 3. *Tephrosia ascendens*. *Suberect Tephrosia*.

Suffrutescent suberect, leaflets 5-6-paired with an odd one lineari-oblong slightly contracted towards the base apiculated appresso-pubescent beneath, racemes terminal, legumes pendulous appresso-puberulous 5-6-seeded.

HAB. Dry savannahs, South side of the Island.

FL. October—January.

Suffrutescent, 1-2 feet in height, ascending; branches compressed, striated, pubescent, subdivided. Leaflets, mucronato-apiculated, glabrous above, appresso-pubescent beneath: petiole 3-gonal, striated, puberulous. Stipules lanceolate, pubescent. Racemes terminal, about 4 inches in length; peduncle compressed. Flowers smaller than in the preceding species, of a pale purplish colour, 2-3 together, pedicelled, furnished with 3 small lanceolato-subulate bractees at the insertion. Calyx externally pubescent; upper lip bipartite for half the length, with the divisions approximating; under lip 3-partite for more than half the length. Standard externally sericeo-puberulous: wings cohering for the greater part of their length to the keel. Stamens with the 10th subaccrete to the rest. Ovary lineari-oblong, compressed, puberulous: stigma ciliated. Legume pendulous,  $1\frac{1}{2}$  inch in length, appresso-puberulous, 5-6 seeded.

## X. SESBANIA.

Calyx 5-fid or 5-dentate, with the lobes subequal. Corolla, with the standard larger than the keel, subrotund, folded up; keel obtuse, 2-clawed at the base. Stamens diadelphous (9 and 1), with a subauriculated sheath at the base. Legume elongated, slender, compressed or subcylindrical, contracted between the seeds, but, from the sutures being incrassated, not truly articulated.

Shrubs or herbaceous plants; leaves abruptly pinnated; racemes axillary; flowers yellow—*Name* from an Arabic word.

### 1. *Sesbania muricata*. *Prickly Jamaica Sesbania*.

Fruticose, branches angulated aculeolato-muricated, as also the petioles, leaflets 30-50-paired linear mucronate subglabrous, racemes 2-8-flowered.

HAB. Between the 15th and 16th mile-stone, on the Windward road.

FL. September—January.

A shrub, about 5 feet in height: branches subterete, angulated, with the angles aculeolato-muricated, coloured. Leaflets rounded and mucronate at the apex: petiole muricated beneath. Stipules lanceolate, deciduous. Peduncles striated, aculeolato-muricated, elongating and becoming thicker as the fruit forms: pedicels  $\frac{1}{2}$  an inch in length, slightly muricated. Flowers small in proportion. Standard clawed, of a yellow colour externally spotted with purple: wings oblong, free; keel in 2 pieces, slightly cohering for a short distance beneath. Ovary glabrous; style curved: stigma obtuse. Legume 10-12 inches in length, cylindrical, tumid at the situations of the seeds, glabrous, beaked with the persistent style,  $\infty$ -seeded: seeds oblong, slightly compressed.

This species approaches very nearly *S. EXASPERATA* of Kunth.

## XI. PISCIDIA.

Calyx campanulate, 5-fid. Keel obtuse. Stamens monadelphous, with the tenth free at the base. Style filiform, glabrous. Legume pedicelled, linear, furnished with 4 longitudinal membranaceous wings, interrupted with isthmi between the seeds. Seeds oval, compressed: hilum lateral: embryo curved: cotyledons elliptico-oblong, thickish: radicle hooked, inflected.—*De Cand.*

West-India trees, with the leaves impari-pinnate.—*Name*, from *PISCIS* a *fish*; the bark, especially that of the root, being employed in poisoning fish.

### 1. *Piscidia Erythrina.* *Common Dogwood.*

Leaflets oblong or obovato-elliptic, racemes paniced axillary, stipe of the legumes 3 times longer than the calyx, wings interrupted.

Coral arbor polyphylla non spinosa, fraxini folio siliqua alis foliaceis exstantibus rotæ molendinarie fluvialis aucta, *Sloane*, II. 39. t. 176. f. 45.—*Ichthyomethia* foliis pinnatis ovatis, racemis terminalibus, siliquis quadrialatis, *Browne*, 296.—*Piscidia Erythrina*, *Swartz*, *Obs.* 277.

HAB. Common.

FL. June, July.

A tree, usually about 20 feet in height. Leaflets 3-4-paired with an odd one, petiolulated, oblong or obovato-elliptic, rounded at the base, entire, pubescent on both sides when young, but subglabrous when old, paler with minute white dots beneath. Racemes compound, axillary (terminal, *Swartz*;) peduncle 3-gonal, puberulous; divisions about an inch in length:

flowers whitish with a purple tinge, shortly pedicelled, with a pair of oblong scarioso deciduous bracteas about the middle of each pedicel. Calyx coloured, very minutely puberulous; the 2 upper teeth coadunate; the 3 lower bluntish. Standard rounded, emarginate, with a greenish tinge in the centre: wings and keel coloured at the apex. Stamens 9 and 1. Ovary linear, compressed: stigma obtuse. Stipe of the legume twice or thrice longer than the calyx; wings 4, longitudinal, membranaceous, with the margin undulated and irregularly lacerated.

The Dogwood tree is most common in the plains and on the lower hills of the limestone formation. The leaves are shed early in the year; and previous to the full development of the new foliage, the flowers make their appearance. The wood is much esteemed, being heavy, firm, and very lasting, not inferior in point of durability to the English oak. The bark is employed, like the Surinam poison, to intoxicate fish. For this purpose it is thrown, coarsely pounded, into the deep still part of some stream, when the water soon acquires a reddish shade, and in a few minutes the fish begin to rise to the surface, where they float. It has been suggested that this remarkable property might be turned to account in medicine, and Dr Hamilton states that the tincture of the bark of the root, is an intense narcotic; and that he has employed it with great success, introduced into the hollow of carious teeth, to relieve toothach. A decoction of the bark, according to Barham, cures the mange in dogs.

## 2. *Piscidia Carthaginensis*. *Mountain Dogwood*.

Leaflets broad-lanceolate, racemes subsimple axillary and subterminal, legumes samaroideal scarcely stipitate with the wings cohering in pairs.

*Piscidia foliis oblongo-ovatis pinnatis, siliquis compressis oblongis*, Browne, 297.—*P. Carthaginensis*, Lunan, *Hort. Jam.* I. 270.—*Jacq. Am.* 210?

HAB. St Andrew's lower hills. Clarendon and Vere, *Lun.*

FL. June.

A tree, 15–20 feet, or more, in height: branches spreading towards their extremities compressed, angulose, glabrous. Leaflets 3-jugate with an odd one 4–5 inches long, petiolulated, broad-lanceolate, acuminate, acute at the base, thin, membranaceous, glabrous and light green above, minutely puberulous and paler beneath. Stipules a green glandulose spot. Racemes axillary and subterminal, subsolitary, shorter than the leaf; common peduncle angulose; branchlets short, about a line in length, filiform, bearing 2–3 shortly pedicelled pale reddish-purpurascant flowers, with a pair of minute bracteas about

the middle of each pedicel. Calyx externally puberulous; teeth of the upper lip indistinct. Standard rounded, minutely appressed-puberulous externally; with a central greenish spot, accompanied, on each side, with a minute oblong ciliated slit, on the inner surface; wings agglutinated to the keel, which is cleft at the apex and at the base. Stamens submonadelphous. Ovary compressed, velvety. Legume subsessile, foliaceous, oblong, 4-ovuled, only one of the seeds perfected: seeds compressed, reniform.

I am inclined to doubt whether this be identical with the *P. CARTHAGINENSIS* of Jacquin. It does not shed its leaves during the period of flowering, like the preceding species. The wood is hard, and the best adapted of any we possess for making the naves of wheels. Lunan informs us, that it is known in Vere and Clarendon by the name of the *Butch-wood*. The bark, &c., have similar properties as in the common Dog-wood.

### Tribe III. *Hedysarææ*.

*Legumex transversely articulated. Stamens almost always with the filaments connected together.*

### XII. MYRIADENUS.

Calyx as if concealed by two leafy opposite bracteoles, tubulose, 5-toothed. Corolla —? Stamens —? Legume of many terete obconical 1-seeded indehiscent joints.—*De Cand.*

*Name*, from *μυρία* innumerable, and *αδμή* a gland, in allusion to the under surface of the leaflets being punctulated.

#### 1. \* *Myriadenus tetraphyllus*. *Four-leaved Myriadenus*.

*Quadrifolium erectum*, *Forc. luteo*, Sloane, I. 156. t. 116. f. 3.—*Ornithopus tetraphyllus*, *Linn. Amer.* V. 402.—*Myriadenus tetraphyllus*, *Desv. Journ. Bot.* III. 121. t. 4. f. 11.

*HAB.* Savannah near Two-mile Wood.

*FL.* —?

According to Sloane this plant is about a foot in height, glabrous. Leaflets in fours, oblong, emarginate, punctulated beneath, placed at the end of the petiole. Pedicels axillary, solitary, very short, 1-flowered. Flowers yellow.

### XIII. ZORNIA.

Calyx campanulate; upper lip emarginate, inferior 3-fid. Corolla inserted into the bottom of the



tube; standard revolute; keel bifido-lanceolate. Stamens monadelphous, with the anthers alternately ovate and globose. Legume compressed, 3-5-jointed; joints subarticulate, very frequently hispid.

Herbaceous plants: stipules sagittate; the inferior ones lanceolate; the upper ones larger and fulfilling the purpose of bractens: leaflets 2-4, oblong, arising from the apex of the petiole: flowers yellow.—Supposed to be named after Mr John Zorn, an apothecary at Kempten in Bavaria, author of *Icones Plantarum Medicinalium*, published between 1779 and 1784.

### 1. *Zornia reticulata*. *Reticulated Zornia*.

Stems diffuse, leaflets 2 lanceolate smooth, the lower ones elliptic, bractens ovate acute ciliated eglandulose 5-nerved reticulated the length of the legumes, legumes pubescent and furnished only with a few slight prickles.

*Hedysarum minus* diphyllum, *Sloane*, L. 165.—*H. herbaceum procumbens*, foliis geminatis, spicis foliatis terminalibus, *Browne*, 304.—*H. diphyllum*, *Swartz*, *Obs.* 255.

**HAB.** Common in dry pastures on the South side of the Island.

**FL.** Throughout the year, especially after rains.

Stem filiform, procumbent, subsimple, terete, glabrous. Leaves distant, alternate: leaflets lanceolate, acute, glabrous above, slightly pubescent beneath, subciliated. Spike terminal: flowers yellow, 3 or more, partly concealed by the stipulary bractens. Bractens 2, ovate, sagittate, acuminate, reticulately nerved, pubescent, ciliated. Calyx membranaceous, 2-lipped; upper lip rounded at the apex; lower 3-fid, with the middle division the largest. Anthers yellow. Legume of 3 joints, scabrous with reverted prickles.

## XIV. STYLOSANTHUS.

Calycine tube very long, slender; limb 5-partite, with the segments unequal. Corolla inserted on the throat of the tube of the calyx; keel minute, bifid at the apex. Stamens monadelphous, with the tube cleft. Ovary sessile: style filiform, very long, straight: stigma capitate, hispid. Legume of two 1-seeded joints; the upper one subuncinate with the acuminate base of the style.—*De Cand.*



Small herbaceous or suffruticose plants; stems branched; leaves 3-foliate; stipules adnate to the petiole; spikes terminal, dense, with imbricated stipules and bracteas; flowers small, yellow. They are destitute of beauty or of any useful property. The name is derived from *στυλος* a style, and *ανθος* a flower.

1. *Stylosanthes procumbens*. *Procumbent Stylosanthes*.

Stem procumbent appresso-pubescent at the apex, leaflets oblong acute glabrous, spikes many-flowered.

*Anonis non spinosa minor glabra procumbens, flore luteo, Sloane, l. 187. t. 110. f. 2.*—*Trifolium procumbens, Browne, 298.*—*Stylosanthes procumbens, Swartz, Fl. Ind. Occ. 1282.*

HAB. Common in pastures.

FL. Throughout the year.

Suffrutescent, 2–6 inches in length. Leaflets entire, obliquely lineated. Flowers yellow. Calycine tube filiform; limb 5-partite, with the division opposite to the standard the longest. Standard emarginate. Stigma pubescent. Legume 1–2 jointed; joints 1-seeded, with the terminal joint hooked: seeds oblong, subreniform.

2. *Stylosanthes viscosa*. *Clammy erect Stylosanthes*.

Stem suffrutescent erect, branches viscoso-hirsute, leaflets elliptic mucronate serrulato-ciliated slightly hirsute, spikes few-flowered.

*Loto pentaphyllo siliquosa similis, Anonis non spinosa, foliis cisti instar glutinosi et odoratis, Sloane, l. 186. t. 119. f. 1.*—*Trifolium suberectum subhirsutum, Browne, 299.*—*Stylosanthes viscosa, Swartz, Fl. Ind. Occ. 1285.*

HAB. Common in dry pastures and by the road-sides.

FL. Towards the end of the year.

Suffruticose, erect, 6–10 inches in height; branches subterete, striated, hirsute with hairs tipped with minute pellucid clammy globules. Leaflets ciliated, slightly puberulous above, pubescent beneath. Stipules deltoideo-lanceolate, acute, ciliated. Spike terminal, leafy; flowers few, small, orange-coloured, solitary and subsessile in the axil of a leaf, and partially protected by the stipules. Bracteoles 2, close to the calyx, and half the length of its tube, linear, ciliated. Calycine tube long, filiform, unequally 5-fid; the segment, which is opposite to the keel, lanceolate, acute; the rest opposite, villosa-ciliated. Standard reflected, rounded, emarginate; wings oblique; keel small, bifid at the apex. Stamens monadelphous, free towards the apex. Ovary lineari-oblong: style long, passing up the tube of the calyx and entering the corolla to be enclosed in the co-

lumn of the stamens within the keel: stigma pubescent. Legume of 2 joints; the lower joint sometimes abortive; the upper compressed, obovato-trapezoidal, villous at the base, minutely hispidulous, acuminate at the upper and outer angle with the hooked remains of the style: seed solitary, compressed.

### XV. *ÆSCHYNOMENE*.

Calyx 2-lipped, upper lip 2-fid or 2-dentate, inferior 3-fid or 3-dentate. Stamens 10, in two rows, equal, concrete. Legume compressed, transversely articulated, exserted. Seeds solitary in each joint, compressed.

Herbs or shrubs, natives of the tropics; leaves impari-pinnate, many-paired; stipules semi-sagittate; racemes axillary; bracteoles 2, opposite, under the calyx; flowers generally yellow.—The name was given by Pliny to a plant, which withdrew its leaves from the contact of the hand. It is derived from *αἰσχρῶμα* to be modest.

#### 1. *Æschynomene Americana*. *American Sensitive Plant*.

Stem suberect terete pilose, leaflets lineari-oblong mucronate 20–30-paired subciliated racemes subramose few-flowered, legumes glabrous with the articulations straight on one side and rounded on the other.

Hedysarum caule hirsuto, mimosæ foliis alatis, pinnis acutis minime granineis, *Sloane*, I. 186. t. 118. f. 3.—*Æschynomene Americana*, *Linn. Spec.* 1061.—*Lam. Ill.* pl. 629. f. 2.—*Æ. sensitiva*, *Swartz, Fl. Ind. Occ.* 1276.

HAB. Common in Lowland pastures.

FL. Autumn.

Stem suffruticose, about 2 feet in height, erect or ascending, of a reddish colour, pilose; hairs strigose, bearing a minute viscid globule at their points. Leaves 2–3 inches in length, about 30-jugate; leaflets subsessile, unequal at the base, lineari-oblong, mucronate, outer edge serrulato-ciliated, inner entire, minutely puberulous, nerved, about  $\frac{1}{3}$ d of an inch in length. Stipules nearly an inch in length, lanceolate, ciliated, marescent. Racemes axillary, subsimple, dichotomously dividing, hispid and pilose, shorter than the leaf, furnished, at the points of branching, with leaf-like ovate concave mucronate serratopilose bracteas. A pair of small lanceolate ciliated bracteoles below the calyx. Upper lip of the calyx oval, scarcely bidentate, ciliated. Standard bent back, flesh colour with a tinge of yellow.

low; keel in two pieces. Ovary oblong, smooth: style short: stigma simple. Legume about an inch in length, 4-seeded, compressed, nearly straight on one edge, and with isthmi marking the articulations on the other.

This is a very common plant in our pastures. The flowers have, like the leaves, a very delicate appearance, and are at first of a pale flesh-colour changing in the course of a day to a saffron. The stem varies in being occasionally glabrous. The leaves are scarcely entitled to be designated sensitive; since, with the exception that they are folded up during the night, and are again opened soon after sunrise, they do not appear to be endowed with irritability. The *Æ. SENSITIVA*, a suffrutescent plant, 6 feet in height, stated by Swartz to be a native of St Lucia and Dominica, has not, so far as I can learn, been detected in this Island.

## XVI. NICOLSONIA.

Calyx 5-partite, with the divisions lanceolato-subulate, bearded. Corolla shorter than the calyx. Stamens diadelphous (9 and 1). Legume exserted, of several compressed semi-orbiculate 1-seeded joints dehiscent along the convex suture.—*De Cand.*

Leaves 1-jugate, with an odd leaflet. This genus is distinguished from *DESMODIUM*, to which it bears a great resemblance, by the calyx being 5-partite and bearded. In this, the stipules are subscariose and distinct from the petiole; the bracteas are similar, but somewhat broader; pedicels in pairs, in the axils of the bracteas; racemes terminal; flowers small, purple; and there are no bracteoles at the base of the calyx.—*Named*, after Ern. Ant. Nicolson, author of an *Essay on the Natural History of St Domingo*, published in Paris in 1776.

### 1. *Nicolsonia barbata*. *Bearded Nicolsonia*.

Leaflets elliptico-oblong, calyces shut after flowering, legumes minutely puberulous.

*Hedysarum barbatum*, *Swartz, Obs.* 287.—*Nicolsonia barbata*, *De Cand. Prod.* II. 325.

HAB. Common in dry spots of mountain pastures.

FL. May—November.

Roots fibrous, branched: stem suffruticose, erect, very short: branches numerous, subterete, of a ferruginous colour, incano-pubescent with appressed hairs. Leaflets elliptico-oblong, somewhat narrowed at the base, rounded and mucronate at the apex, subglabrous above, incano-pubescent with appressed hairs beneath: petioles compressed, pubescent. Stipules long, linear-

lanceolate, attenuated, ciliated, marescent: stipels minute setaceous. Racemes terminal, very short, of a number of small crowded purple flowers. Bracteas ovato-lanceolate, attenuated at the apex, ciliated, with a pair of pedicels in the axilla of each. Pedicels  $\frac{1}{2}$  an inch in length, filiform, puberulous with minute uncinat hairs. Calyx externally hirsute, 2-lipped: upper lip bifid, with the divisions approximating; lower lip 3-partite, with the divisions lanceolato-subulate. Petals shorter than the calyx; standard obovate, rounded; wings and keel clawed. Stamens 9 and 1; anthers minute, globular, white. Ovary linear, tereti-compressed, green, pubescent; style longer than the stamens; stigma sub-capitate, excavated. Legume incurved at the base, twisted at the joints, minutely puberulous; joints semi-orbiculate. Seeds subrotund, compressed.

The calyx, as noticed above, is distinctly 2-lipped, with the upper lip bifid: we may therefore doubt the propriety of removing this species from the genus *DESMODIUM*.

### DESMODIUM.

Calyx usually bibracteolated at the base, obscurely bilabiate, as far as the middle; upper lip bifid; under 3-partite. Standard roundish; keel obtuse, not truncated; wings longer than the keel. Stamens diadelphous (9 and 1) with the filaments persistent. Legume of many joints, separating in maturity, compressed, one seeded, membranaceous or coriaceous, not at all or scarcely dehiscent.—*De Cand.*

Herbs or shrubs, for the most part natives of tropical countries. Leaves either 3-foliate, or 1-jugate with an odd leaflet, or simple; stipels 2 at the base of the outer, and 1 at that of each of the lateral leaflets. Racemes terminal, generally lax. Pedicels 1 or more frequently 3, from the axils of the bracteas, filiform, one-flowered. Flowers purple, azure, or white. Several of the exotic species have been introduced, and are common in our gardens. The *D. GYRANS*, *the moving plant*, is a common weed in certain situations.—*Name*, from *δεσμος* a chain, and *ἔδος* a mode of doing any thing; the joints of the legumes being, as it were, chained together.

#### 1. *Desmodium incanum*. *Hoary Desmodium*.

Stem suffrutescent suberect terete puberulous, leaflets ovato-oblong or elliptic hispidulous or subglabrous above incano-pubescent beneath, stipules lanceolate ciliated, racemes terminal or opposite to a leaf, pedi-



cels solitary, legumes subdeflected with the joints semi-orbiculate hispid with minutely hooked hairs.

*Hedysarum triphyllum fruticosum supinum*, flore purpureo, *Sloane*, I. 185. t. 118. f. 2.—*Hedysarum*, *Plum. Ic.* 149. f. I.—*H. canescens*, *Mill. Dict.*—*H. incanum*, *Swartz, Fl. Ind. Occ.* 1265.—*Æschynomene incana*, *Meyer*, 245.—*Desmodium incanum*, *De Cand. Prod.* II. 332.

HAB. Common in pastures and by the roadsides.

FL. Throughout the year.

Stem, when growing in thickets, suberect, but, in open clear places, procumbent and rooting at the base, afterwards ascending. Branches long, simple, towards their extremities somewhat angulose. Leaflets petiolulated, the middle one the largest, oblongo-ovate or elliptic, minutely apiculated, nerved, veined, subglabrous or hispidulous, with minute hooked hairs above, incano-pubescent (approaching to villous) beneath: petiole channelled above, coloured, hispidulous. Stipules half the length of the petiole, broad at the base, acuminate at the apex, ciliated, marescent: stipels setaceo-subulate. Racemes terminal, or afterwards, from the stem elongating by a development of a bud in the axil of the subterminal leaf, opposite to a leaf, 4–6 inches in length, filiform, striated: pedicels solitary,  $\frac{1}{2}$  an inch in length, furnished at the base with three small lanceolate (the centre one the largest) bracteas. Flowers small, purple. Calyx ebracteolated, coloured, ciliated: upper lip bifid; under 3-partite with the divisions lanceolate. Standard obovate, emarginate; wings obovato-oblong, rather larger than the keel; keel bifid at the apex. Stamens 9 and 1. Ovary linear, pubescent: style short: stigma obtuse. Legume usually deflected, 6–7-jointed; joints semi-orbiculate, hispid with minutely uncinat hairs.

The leaves of this species vary very much in shape. In thickets the oblong figure prevails; whereas in open clear places they approach to roundish. It is a very common weed in pastures, and troublesome, from the joints of the pods attaching themselves to the clothes. The specific designation of hoary is applied, from the under surface of the leaves being *incano-pubescent*.

I consider *H. SUPINUM* of Swartz to be merely a variety of the present species.

## 2. *Desmodium tortuosum*. *Tortuous-podded Desmodium*.

Stem erect herbaceous hispid with hooked hairs suffrutescent at the base, leaves ovali-oblong hispid on both sides hirsute along the nerves beneath, sti-



pules very much acuminate, racemes axillary and terminal elongated lax, legumes somewhat erect with joints roundish tortuous hispid.

*Hedysarum erectum triphyllum*, *Sloane*, I. t. 116. f. 9.—*H. caulescens erectum triphyllum*, floribus minimis, *Browne*, 301.—*H. tortuosum*, *Swartz*, *Fl. Ind. Occ.* 1273.—*H. B. et Kunth*, VI. 521.—*Desmodium tortuosum*, *De Cand. Prod.* II. 332.

HAB. Common.

FL. After the May and Autumnal rains.

Herbaceous, suffrutescent at the base, erect, about two feet high, subdivided, angulose, striated, hispid. The terminal leaflet the largest, ovali-oblong, with the apex obtuse and terminating in a setaceous awn, hispid on both sides with minute hooked hairs, hirsute with straight hairs along the under surface of the nerves, ciliated: common petiole of the same length as the middle leaflet, striated, hispid with minutely hooked hairs: petiolules short, hispid. Stipules an inch in length, ovato-falcate, very much attenuated at the apex, oblique, purpureo-striatulate, ciliated: stipels lineari-lanceolate, 3-nerved, ciliated. Racemes axillary, and terminal, very long, loose, many-flowered. Pedicels in twos, about an inch in length, capillary, hispidulous with resinous amber-coloured globules intermixed, one-flowered. Bracteas at the base of the pedicels, lineari-lanceolate, ciliated, deciduous. Flowers small in proportion of a pale azure colour. Calyx hispid, and with resinous globules among the hairs; segments lanceolate, attenuato-acuminate, ciliated. Pod somewhat erect, elongated, twisted; joints roundish, hispidulous with hooked hairs.

The above description differs in no material respect from that of *Swartz*. *Bertero* was the first to point out that the hairs were hooked. It is a very common weed in the intervals of cane-pieces.

### 3. *Desmodium molle*. *Villous Desmodium*.

Stem erect roundish hirsute with hairs straight and hooked, leaves ovate attenuated villous beneath with the hairs appressed, racemes terminal and axillary, pedicels 3-nate, legumes when young tortuous hispid with hooked hairs, joints rhomboid, the terminal one suborbiculate larger at length glabrous.

*Hedysarum molle* *Vahl*, *Symb.* II. p. 83.

HAB. Common weed in the Cane pieces of Guanaboa, St John's.

FL. End of Year.

Stem suffruticose, 2-3 feet high, sub-ramose, terete, hirsute

with the shorter hairs hooked. Leaflets elliptic, obtuse, apiculated, villous beneath with the hairs appressed, ciliated. Stipules 2, broad-falciform, attenuate, coloured, ciliated: stipels linear. Petiole terete, compressed, striated, hirsute with hooked hairs. Racemes axillary and terminal. Common peduncle terete, hirsute with hooked hairs. Pedicels 2-3 together, filiform. Bracteas small, linear. Flowers small. Calyx irregularly 5-fid, hairy. Standard and wings purple, keel green. Legume 6-jointed, spirally twisted, hispid with hooked hairs.

According to De Candolle, the stem is somewhat glabrous.

#### 4. *Desmodium ellipticum*. *Oval-leaved Desmodium*.

Stem suffruticose rooting towards the base afterwards ascending sub-glabrous, leaflets elliptic puberulous, stipules subfalcato-lanceolate, racemes terminal, pedicels solitary or 2-3 together, calyx ebracteolated, legumes straight hispid with minutely uncinata hairs.

*Hedysarum triphyllum fruticosum minus*, *Sloane*, I. 185. t. 118. f. 1?

HAB. Shady situations in the mountains. Neighbourhood of St Catherine's Peak.

FL. May.

Stem procumbent and rooting at the base, afterwards ascending, about a foot in height, suffruticose, branched: branches subsimple, slightly compressed, minutely puberulous. Leaflets petiolulated, (the terminal one the largest), elliptic, puberulous: petiole sub-3-gonal, slightly channelled above, puberulous. Stipules lanceolato-falcate (the side next to the petiole straight the other curved), setaceo-attenuated at the apex, striated, ciliated: stipels setaceous. Racemes terminal, elongated (about 8 inches in length), subsimple, many-flowered. Peduncle compressed striated, hispid with minutely uncinata hairs: pedicels 1 or 2-3-4 together, about  $\frac{1}{2}$  an inch in length, filiform, hispidulous. Bracteas at the base of the pedicels, broad-ovate, acuminate, ciliated, deciduous. Calyx ebracteolated, 2-lipped; upper lip bifid, with the teeth minute and approximating; under lip deeply 3-partite with the divisions lanceolate, spreading; all of them partially hirsute on the back. Standard reflected, roundish, emarginate, purple marked with 2 oblong whitish spots near the base: wings auriculated on the upper edge near the base, and adhering to the keel at the under: keel in 2 pieces, cohering near the apex, of the same size as the wings. Stamens 9 and 1: anthers roundish, yellow. Ovary pubescent: style longer than the stamens: stigma obtuse, sub-capitate. Legume 4-jointed, hispid.

This plant agrees in some respects with the *HEDYSARUM*

ADSCENDENS of Swartz, but differs from it in several important particulars.

5. *Desmodium trigonum*. *Large climbing Desmodium*.

Stem herbaceous scandent triquetrous hairy, leaflets ovate or ovato-lanceolate apiculated hairy, racemes terminal very long, legumes tortuous hispid inflected.

Hedysarum triphyllum maximum, Browne, 301.—H. adhærens, Vahl, *Symb.* II. 82.—H. trigonum, Swartz, *Fl. Ind. Occ.* 1267.

HAB. Common in the lower mountains of St Andrew's and Port Royal.

FL. January—April.

Stem climbing to a considerable height, 3-gonal with the angles blunt, and furnished with stiff-hooked hairs directed backwards. Leaves remote; leaflets ovato-lanceolate (the terminal one the largest) somewhat acuminate, apiculated, nerved, reticulato-venose, rugose or somewhat bullate, ciliated, and on the upper side, in addition to the long straight hairs, furnished along the nerves with adherent hooked hairs: petiole 3-quetrous, grooved above. Peduncle of the raceme long, subterete, angulose, with the angles armed with hooked hairs. Flowers purple, rather large and showy, geminate. Bracteas length of the pedicels, ovato-lanceolate, concave, ciliated, membranaceous, deciduous. Legumes linear, acuminate, tortuous, hispid with hooked hairs.

This species is readily recognised from every other in the Island, being the largest and most showy of the genus of which we can boast. By means of the hooked hairs, with which it is plentifully furnished, the branches and leaves as well as the legumes readily adhere to the dress of passengers. I cannot imagine what Swartz meant by describing the apex of the leaf as uncinatæ.

6. *Desmodium radicans*. *Rooting Desmodium*.

Stem suffruticose prostrate rooting creeping, leaflets obovato-elliptic, acute at the base, rounded at the apex, subglabrous above, hoary and velutino-pubescent beneath, peduncles subradical elongated erect, pedicels in pairs, joints of the legume 2 semi-orbiculate hispidulo-adherent.

Hedysarum axillare, Swartz, *Fl. Ind. Occ.* 1274.

HAB. Common in St Andrew's and Port-Royal mountains in

shady places, especially at the base of rocks having a northern aspect.

FL. Summer months, after rain.

Stem prostrate, sending off roots opposite to each leaf, subterete, hispid with minute hooked hairs. Leaves distant, larger than in the greater number of the genus; leaflets shortly petiolulated, obovato-elliptic, wedge-shaped at the base, somewhat rounded and emarginate, with an awn at the apex (the lateral leaves somewhat unequilateral) nerved, subglabrous above (puberulous towards the margin), pale and velutino-pubescent beneath: petiole elongated, sub-3-gonal, hispidulous with the hairs minutely uncinatè. Stipules ovate, acuminate, scariose. Peduncles axillary, subradical, longer than the leaves, about 8 inches in length, compressed, striated, coloured, hispidulous, with minute uncinatè hairs. Racemes about 6 inches in length, of many rather showy purple-crimson flowers: rachis angulose, striated, hispidulous with hooked hairs: pedicels in pairs, nearly an inch in length, filiform, angulose, puberulous with minute hairs, which are pellucido-capitato-glandulose. Bractees small, one to each pair of pedicels, ovate with the apex attenuated, concave internally, keeled on the back, puberulous, deciduous. Calyx externally puberulous, distinctly 2-lipped; upper lip ventricose, slightly bifid, with the divisions setaceo-subulate; under lip 3-partite, with the divisions deltoideo-ovate, attenuated, divaricating. Standard obovate, rounded and slightly emarginate, convex, crimson-purple, with 2 yellow spots near the base; wings oblong, concave; keel bifid at the apex. Stamen diadelphous; filaments crimson: anthers globular, yellow. Ovary linear, compressed, puberulous: style somewhat hooked: stigma obliquely obtuse. Legume pedicelled, apiculated with a persistent portion of the style, 2-jointed, hispidulous with minute pellucid hooked hairs; joints rather broad, semiorbiculate.

7. *Desmodium oblongifolium*. *Oblong-leafed Desmodium*.

Stem herbaceous diffuse terete villosa-hispid as also the petioles, stipules scariose ovate acuminate, leaflets ovato-oblong acuminate pubescenti-villous, peduncles subradical elongated loosely racemose at the apex, lower pedicels in pairs.—*De Cand.*

*Bertero, De Cand. Prod.* II. 332.

HAB. Woods in the higher mountains.

FL. — ?

This has evidently a great resemblance in character to the preceding species.



8. *Desmodium spirale*. *Spiral-podded Desmodium*.

Stem suffruticose procumbent and rooting at the base, afterwards ascending or scandent, branches subterete subglabrous, leaflets ovate minutely hispidulous, racemes subterminal elongated, pedicels 2 or 3 together, legumes 4-5-jointed hispidulous with minute hooked hairs spirally twisted.

Hedysarum *spirale*, Swartz, *Fl. Ind. Occ.* 1273.—H. procumbens, *Mill. dict.*

HAB. Common in thickets and dry shady situations.

FL. Towards the end of the year.

Stem 1-4 feet in length: branches diffuse, long, filiform, green, angulose, striated, subglabrous. Leaflets (the middle one the largest) ovate, subacute, hispidulous with minute uncinata hairs, usually discoloured with a whitish spot in the centre: petiole striated. Stipules scariosa, broad at the base, setaceo-mucronate at the apex: stipels minute, lanceolate. Raceme opposite to a subterminal leaf (hence apparently terminal), filiform, very long. Peduncle hispidulous with minute uncinata hairs: pedicels 2-3 together, half an inch in length, furnished at the insertion with about 3 subulate bracteas. Flowers small, greenish-white, tinged with purple. Calyx ebracteolated, minutely puberulous: upper lip minutely bidentate; lower lip 3-partite, with the divisions lanceolato-subulate. Standard subrotund; wings rather shorter than the keel, which is concave and bifid at the apex. Stamens diadelphous. Legume spirally twisted, 4-5 jointed; joints rhomboideo-obovate, hispidulous, with minute uncinata hairs.

9. *Desmodium scorpiurus*. *Hare's-foot Honey-suckle*.

Stem procumbent slightly hairy, stipules falcato-ovate acuminate, leaflets elliptic or subovato-oblong obtuse pubescent, racemes terminal elongated, pedicels 3-4 together, legumes of 5-7 oblong joints.

Hedysarum triphyllum, hirsutum minus repens, *Browne*, 301.—H. scorpiurus, Swartz, *Fl. Ind. Occ.* 1268.

HAB. Common in dry pastures and by the road-sides.

FL. October—January.

Stem suffrutescent, rooting near the base, 3-gonal, striated, slightly hairy intermixed with a minute uncinata pubescence. Leaflets petiolulated, elliptic, occasionally approaching to oblong, at other times subobovate, rounded at the apex, pubescent, slightly hoary beneath. Stipules falcato-ovate, acuminate, ciliated. Racemes terminal, elongated, 3-5 inches in length.



Flowers whitish tinged with purple. Peduncle compressed, striated, pubescent: pedicels 3-4 together,  $1\frac{1}{2}$  inch in length, filiform, furnished with 3 small lanceolate bractees at the insertion; clusters of pedicels distant. Calyx externally pubescent, sub-bilabiate; upper lip 2-fid with the divisions approximating; lower 3-partite with the divisions subequal, lanceolate. Standard obcordate. Legume resembling a hare's foot in miniature, subterete, compressed, hispid with minute hooked hairs; joints 5-7, oblong; the terminal one apiculated with a persistent portion of the style.

According to De Candolle, the racemes are opposite to a leaf; but I have not observed this in any specimen I have met with.—Browne found this species a little beyond Guy's Hill. It is very common by the roadsides in Port-Royal mountains.

10. *Desmodium triflorum*. *Three-flowered Desmodium*.

Stem filiform procumbent rooting pubescent, leaflets obcordate glabrous above puberulous along the nerves beneath, pedicels axillary 2-3 together 1-flowered, joints of the legumes 3-4 semiorbiculate hispidulous.

*Hedysarum triflorum*, Swartz, *Obs.* 288. t. 6. f. 1.

HAB. By the road sides, and in cane-piece intervals.

FL. November.

A small plant common on our plains, by the roadsides and in pastures. The flowers are minute, and, according to Swartz, open about 10 o'clock in the morning, and close at 4 in the afternoon. It is a native of different parts of the East, as well as the West Indies.

\* \* *Papilionaceous plants, with the cotyledons thick and fleshy.*

Tribe IV. *Vicieæ*.

*Legume many-seeded, dehiscent. Leaves cirrhose; the first pair alternate.*

XIX. VICIA. *Vetch*.

Calyx tubulose, 5-fid or 5-dentate. Stamens diadelphous. Style bearded beneath the stigma. Seed with an oval or linear hilum.

1. *Vicia sativa*. *Common Vetch or Tare*.

Leaflets 10-12 oblongo-retuse mucronulate, sti-

pules sagittato-dentate marked, flowers sessile subgeminatè, legumes compressed subtorulose, seeds subglobose slightly velvety.

*Linn. Sp.* 1037.

HAB. Common in the Port-Royal and St Andrew's mountains.

FL. Throughout the year.

This is a valuable agricultural plant, extensively cultivated in Europe for summer and winter fodder.

## XX. PISUM. *Pea.*

Calycine divisions leafy. Standard large, reflected. Style compressed, keeled, villous above. Seeds subglobose, with a roundish hilum.

### 1. *Pisum sativum.* *Common Pea.*

Petioles terete trijugate, stipules ovato-sub-semicordate crenated, peduncles many-flowered.

*Linn. Sp.* 1026.

HAB. Cultivated.

FL. Throughout the year.

The Pea is very generally cultivated throughout the Island, and bears at any period of the year. A *creolized* variety of the rounceval, known in the country by the name of the *Lynch Pea*, is the most prolific. The *Pois-mange-tout*, or *Pois-goulus* of the French, Greedy Pea of the English, bears only in the higher mountains.

## Tribe V. *Phaseoleæ.*

*Legume many-seeded, dehiscent. Leaves not cirrhose; the first pair opposite.—De Cand.*

## XXI. ABRUS.

Calyx obsoletely 4-lobed, with the upper lobe broader than the rest. Standard acute. Stamens 9, concrete at the base into a sheath which is open above. Stigma obtuse. Legume oblong, 4–6-seeded: seeds separated by cellulose isthmi, subrotund.

*Name*, from ἀβρός; *elegant.*

1. *Abrus precatorius*. *Wild Liquorice-vine*.

*Phaseolus Glycyrrhizites folio alato, piso coccineo atra macula notato*, *Sloane*, I. 180. t. 112. f. 4. 5. 6.—*Glycine scandens*, *Browne*, 297.—*Abrus precatorius*, *Linn.* *Syst.* 533.—*Gærtn. Fruct.* II. 328. t. 151.

HAB. Common on fences.

FL. End of the year.

A twining shrub. Leaves abruptly pinnated, many-paired. Flowers flesh-coloured. Seeds scarlet, white, or rufous, with the black spot larger or smaller.

The roots of this plant are sold, in the streets of Calcutta, as a substitute for those of the common Liquorice of Europe. The leaves also have a similar taste, and an extract, resembling that of the Liquorice, and an infusion, much used as a diluent drink, may be prepared from them. The seeds have been incorrectly characterized by Browne, as very deleterious; two or three, according to Herman, an author from whom he quotes, being a mortal dose. They are, on the contrary, perfectly innocuous, and, though hard and very indigestible, form, according to Prosper Alpinus, an article of food in Egypt. They are made use of in India, as weights. They are principally employed, strung like beads, to form necklaces and rosaries: and it is, from their being employed for the latter purpose, that the plant has received the specific designation of *PRECATORIUS*.

XXII. *TERAMNUS*.

Calyx bilabiate, upper lip bifid, inferior shorter, 3-partite; lobes acute. Keel very small, concealed in the calyx. Stamens monadelphous, alternately sterile. Stigma sessile, capitate, on the apex of the ovary. Legume linear, compressed, many-seeded, bivalved.—*De Cand.*

Suffruticose, twining, natives of the Caribbees; branches subangulated; leaves 1-paired, with an odd leaflet; racemes axillary, longer than the leaf; flowers remote, small, of a reddish tinge.

1. *Teramnus uncinatus*. *Hooked Teramnus*.

Branches sericeo-hirsute, leaves silky beneath and pubescent above, leaflets oblong or oblongo-lanceolate.

*Teramnus triphyllus subhirsutus*, *Browne*, 290.—*T. uncinatus*, *Swartz, Fl. Ind. Occ.* 1239.

HAB. Common on fences and in waste places.

FL. November, December.

Stem suffrutescent at the base; branches 3-quetrous, sericeo-

hirsute, with the hairs of the angles rufous. Leaflets blunt with an apicula. Stipules lanceolate, pubescent, deciduous. Racemes axillary, in general of the same length as the leaves, solitary, erect: common flower-stalk compressed, rufo-hirsute. Flowers shortly pedicelled, remote, geminate, small, of a reddish purple colour. Bracteoles minute, lanceolate, hirsute. Calycine lobes subequal, subulate; the middle lobe of the under lip produced. Standard somewhat longer than the calyx. Ovary linear, hirsute: style very short: stigma obtuse. Legume 2 inches in length, subcylindrical and slightly compressed, terminating in a hook, rufo-hirsute: seeds oblong, compressed, ochre-coloured.

## 2. *Teramnus volubilis*. *Twining Teramnus*.

Branches subhirsute filiform, leaves subglabrous above pubescent beneath, leaflets ovato-lanceolate.

*Swartz, Fl. Ind. Occ.* 1241.

HAB. Common on fences.

FL. Towards the end of the year.

Stem suffrutescent at the base; branches 3-gonal, pubescent. Leaflets smaller than in the former species, ovate or ovato-lanceolate, obtuse, apiculated, slightly puberulous, and of a bright green above, pubescent beneath. Racemes longer than the leaves: flowers shortly pedicelled, small, of a pale purple. Calycine lobes acute. Standard obcordate. Stamens alternately sterile. Ovary linear, pubescent: style none: stigma capitate. Legume  $1\frac{1}{2}$  inch in length, linear, slightly hooked at the apex; valves, after the opening of the pod, spirally twisted: seeds oblong, luteo-fusoid, shining.

## XXIII. RYNCHOSIA.

Calyx sub-bilabiate; upper lip 2-toothed; lower 3-fid. Corolla frequently not exceeding the calyx in length. Diadelphous, with the single filament geniculated near the base. Legume sessile, compressed, subfalcate, 2-seeded.—*De Cand.*

Suffruticose or herbaceous, scandent; leaves trifoliate, rarely simple: flowers axillary, racemed, or solitary, yellow. Composed of species referred formerly to the genus GLYCINE. The name is derived from *ρυγχος* a snout or beak.

## 1. *Rhynchosia Caribæa*. *West-India Rhynchosia*.

Stem twining angular pubescent, leaflets ovato-rhomboid acute pubescent resinose-punctate beneath, legumes acinaciform hispid.

*Glycine Caribæa*, Jacq.  *Ic. Rar. t. 146.*—*Bot. Reg. 275.*—*Glycine reflexa*, Nutt.  *Gen. Am. II. 115.*

HAB. On fences, neighbourhood of Bath.

FL. Throughout the year.

Stem filiform, twining, angular, sulcated, pubescent. Leaflets nerved and veined. Stipules subulate. Racemes axillary, simple, longer than the leaves. Flowers small (but larger than in the following species), yellow. Calyx externally pubescent and resinoso-punctate. Standard reflected, striated; wings small; keel yellow spotted with orange. Ovary pubescent: style curved: stigma obtuse. Legume acinaciform, about an inch in length, hirsute, resinoso-punctate, 2-seeded.

This has a great resemblance to the following species, but is larger in all its parts.

## 2. *Rhynchosia minima.* *Least Rhynchosia.*

Stem twining slender angulated subpubescent, leaves rhomboid mucronated puberulous resinoso-punctate beneath, flowers reflected, legumes oblong attenuated at the base minutely subvelutine.

*Phaseolus minimus foetidus*, Sloane,  *I. pl. 115. f. 1.*—*Dolichos minimus*, Jacq.  *Obs. I. t. 22.*—*Glycine Lamarckii*, Kunth,  *VI. 424.*—*Rhynchosia minima*, De Cand.  *Prod. II. 385.*

HAB. Common in the dry hot plains, by the road-sides.

FL. After rain.

Stem filiform, angulato-striated, pubescent, twining, seldom more than a foot in height. Leaflets small, petiolulated, rhomboideo-ovate, mucronato-apiculated, puberulous, resinoso-punctate, especially beneath. Stipules setaceo-subulate, deciduous. Racemes axillary, in general longer than the leaf, few-flowered. Flowers small, yellow, pedicelled, reflected. Calyx puberulous, resinoso-punctate: divisions unequal, lineari-lanceolate. Standard erect, entire, externally veined with purple. Legumes not an inch in length, oblong, compressed, rounded and apiculated with the remains of the style at the apex, narrowing towards the base, minutely velutine and resinoso-punctate, 2-seeded: seeds reniform.

## 3. *Rhynchosia phaseoloides.* *Phaseolus-like Rhynchosia.*

Stem twining terete pubescent, leaflets broad-ovate acuminate glabrous above villous and impunctate beneath, racemes axillary and sub-terminal, legumes contracted in the middle.

*Glycine phaseoloides*, Swartz,  *Fl. Ind. Occ. 1248.*—*Abrus*,



*Lam. Ill. t. 608. f. 2.*—*Rynchosia phaseoloides*, *De Cand. Prod. II. 385.*

HAB. Twining on trees, on the South Side of the Island  
FL. May.

Stem suffrutescent; branches striated, puberulous, and under the glass with minute yellow glandular dots. Leaflets apiculated, nerved, reticulato-venose, minutely puberulous, and dotted with minute yellow glandules beneath. Stipules small, lanceolate, deciduous. Racemes numerous towards the ends of the branchlets, axillary, solitary, simple, 5–6 inches long. Flowers fuscoluteoid, shortly pedicelled, distinct, sub-deflected. Common peduncle angulose, puberulous, dotted with minute yellow glandules. Calycine divisions lanceolate, acute; the two upper approximate; the three inferior spreading, with the middle one the largest. Standard concealing the keel and the wings, emarginate at the apex, greenish-yellow striated with purplish veins, externally puberulous, and minutely-glanduloso-punctate; wings linear; keel subfalcate. Filaments 10, with the upper one free. Ovary oblong: style length of the stamens, dilated in the middle: stigma acute. Legume oblong, deflected, compressed, attenuated at both ends, pubescent, contracted in the middle, 2-seeded, when ripe ferrugineo-pubescent, dehiscent at the upper suture: seeds spherical or oblong, shining, black, with the hilum scarlet.

Seeds not unlike those of the *ABRUS PRECATORIUS*.

#### 4. *Rynchosia reticulata*. *Reticulated Rynchosia*.

Stem twining angular silky-subtomentose, leaflets ovate bluntish reticulato-nervose 3-nerved at the base silky, racemes axillary many-flowered shorter than the leaf, legumes broad pubescent.

*Glycine reticulata*, *Vahl, Symb. III. 88.*—*Swartz, Prod. 105.*  
—*Rynchosia reticulata*, *De Cand. Prod. II. 385.*

HAB. Port-Royal mountains.

FL. March.

Stem suffrutescent. Leaflets (the middle one the largest) rather obtuse, reticulately nerved, veined, silky, with the hairs appressed. Stipules deltoid, silky; stipels subulate. Petiole 3- (sub-5-) angular, silky. Racemes axillary, elongating. Flowers yellow, shortly pedicelled. Calyx resinoso-punctate, and silky, with minutely glanduliferous hairs; upper lip bifid; lower deeply 3-partite, with the divisions spreading. Standard roundish entire; wings toothed; keel distinct at the base. Ovary pedicelled: stigma simple, blunt. Legume compressed, beaked with the remains of the style, pubescent, 2-seeded.

XXIV. Phaseolus. *Kidney Bean.*

Calyx bell-shaped, two-lipped; upper lip two-toothed; under 3-partite. Corolla papilionaceous; keel spirally twisted with the diadelphous stamens and style, or more rarely incurved. Stalk of the ovary sheathed in the torus. Legume compressed or cylindrical, 2-valved, divided internally by cellulose isthmi: seeds several; hilum ovali-oblong.—*De Cand.*

Herbaceous or suffruticose, commonly twining: leaves pinato-3-foliate; racemes axillary; pedicels usually geminate, always 1-flowered. *Name*, from PHASELUS *a little boat*, to which the pods bear some resemblance.

\* *Root perennial. Stem suffrutescent at the base.*

1. Phaseolus amœnus. *Fragrant-flowered Phaseolus.*

Twining fruticose slightly pubescent, leaflets ovate rounded or subcordate at the base subacuminate and apiculated at the apex glabrous above pubescent along the nerves beneath, raceme shorter than the leaf, upper calycine lip emarginate lower 3-fid, legume straight linear compressed.

*Bot. Misc.* II. 113.

HAB. Port-Royal Mountains. St John's Hills. Neighbourhood of Savannah la Mar.

FL. Autumn.

Stem twining to several feet in height, frutescent, angulose. Leaflets minutely ciliated. Stipules small, oblongo-lanceolate: stipels oval. Racemes axillary: peduncle shorter than the leaf; 2-4-flowered. Flowers shortly pedicelled, showy, purple, fragrant. Calyx striated, minutely ciliated. Standard deflected, rounded, emarginate, purple; wings broad; keel spirally twisted. Stamens diadelphous; single filament geniculated: anthers lineari-oblong, yellow. Ovary puberulous: style bearded below the stigma, which is obtuse. Legumes about 6 inches long and 3 lines broad, linear, compressed, straight, with a long beak: seeds reniform, shining.

The flowers of this species are very showy, and bear some resemblance to those of the *Snail-flower*, P. CARACALLA. A variety with the leaflets more oblong, and, as well as the flowers, smaller, is to be met with in the neighbourhood of Savannah la Mar.

2. *Phaseolus dumosus*. *Year-Bean*.

Twining hispid, leaflets ovate subacuminate villous along each side of the nerves on the under surface, racemes at first shorter, afterwards longer than the leaf, upper lip of the calyx sub-1-dentate, legume subtorulose warty along the sutures.

HAB. Common in the higher mountains in thickets, and ruinat provision grounds.

FL. Summer.

Root perennial, thick, branched, carnosio-fibrous. Stem suffruticose towards the base, twining, anguloso-sulcated, hispid with reverted hairs. Leaflets ovate, scarcely acuminate, with the apex acute, rounded at the base (the lateral ones unequilateral), entire, 3-nerved at the base, veined, hispid, villous beneath along the course of the nerves, membranaceous: petiole about 5 inches in length, anguloso-sulcated: petiolules short, terete, pubescent. Stipules oblongo-lanceolate: stipels oblong. Racemes axillary, solitary, many-flowered, elongating as the fruit forms; peduncle angulose, hispidulous: pedicels about 3 together, the fourth an inch in length, furnished at the insertion with 3 lanceolate bracteas (the middle one the largest): a pair of lineari-lanceolate bracteoles below each flower, longer than the calyx. Calyx with the upper lip sub-entire: the lower 3-fid with the divisions attenuato-acuminate. Standard roundish, emarginate, concave, bicallose near the claw, whitish tinged with purple near the base externally, turned slightly to the right (of the flower): wings twice the length of the standard, of a pure white: keel spirally twisted, turned up between the wings into the concavity of the standard. Stamens 9 and 1. Ovary linear, compressed, glabrous: style pubescent beneath towards the stigma. Legume pendulous, about 6 inches in length, mucronate, slightly compressed, tumid at the situations of the seeds, sub-glabrous, warty: seeds 6, subreniform, compressed, plump, of a chestnut colour.

This grows wild, and is very common in mountain thickets. It readily attracts notice, by its beautiful snow-white blossoms. It bears only once a year. The seeds have a great deal of the flavour of the Windsor-bean, and are preferred by many to any of the pulse-kind cultivated in the Island. It is difficult to say positively whether it be a native or introduced. I have never seen it cultivated.

3. *Phaseolus Limensis*. *Lima Bean*.

Twining pubescent, leaflets ovato-deltoid subacuminate bluntish apiculated, racemes shorter than the leaf, wings of the corolla elongated, legume knife-

shaped warted along the sutures pubescent 3-seeded, seeds white tumid.

HAB. Cultivated.

FL. December.

Root and lower part of the stem perennial: branches terete, striated, pubescent. Leaflets thicker than in any of the other species of this genus, slightly acuminate, blunt, entire, nerved and veined, pubescent above, hispid beneath; lateral leaflets unequilateral. Stipules ovate, acute, marcescent: stipels small. Racemes axillary. Flowers white, on short round pubescent pedicels, 2, 3, 4 together. Calyx bibracteolated at the base, pubescent; upper lip bifid, lobes obscure, repand, rounded; lower lip 3-dentate, teeth acute, and the middle one most prominent. Standard roundish, emarginate, bilobed, with the lobes concave; wings oblongo-obovate; keel twisted. Ovary sericeo-pubescent. Legume  $\frac{3}{4}$  of an inch broad and 3 inches long, compressed, pubescent when green, warted along the sutures: seeds 3, oblong, plump, compressed, white.

I cannot reconcile the character of this plant with the description of any species hitherto noticed. This is the more remarkable, as it has been long esteemed and in cultivation in the West Indies. It may have been overlooked, owing to the circumstance that it flowers and bears only once a year. Of the species noticed by De Candolle, it approaches nearest to *P. TUMIDUS*.

This is justly considered as among the most delicate of the pulse tribe cultivated in Jamaica. When young, it has a taste very much resembling that of the Windsor Bean. It is dressed plain with butter, or in soup. It is not generally cultivated, there being an uncertainty in its returns. It is usually trained to cover arbours. A gentle pruning is recommended after bearing.

#### 4. *Phaseolus gonospermus*. *Hibbert Pea*.

Twining hispidulous, leaflets ovate acuminate, racemes shorter than the leaves, legume short sub-compressed torulose warty along the sutures 3-seeded, seeds irregularly angulated.

*Savi, Mem.* III. 20. f. 19?

HAB. Cultivated.

FL. Throughout the year.

Stem suffruticose towards the base, angulose, hispidulous with reverted hairs. Leaflets as if truncated at the base, subcordate, deltoideo-ovate, acuminate with the apex bluntish, hispidulous especially along the under surface of the nerves. Stipules small, ovate, acuminate: stipels oblong. Racemes



axillary, shorter than the leaf, many-flowered. Flowers small; at first pure white, afterwards yellowish, in clusters of 3-6, pedicelled, furnished with small ovate acute bracteas at the base. Calyx bibracteolated, puberulous; upper lip subemarginate; lower lip 3-fid; segments broad-ovate. Standard greenish, roundish, subemarginate, concave; wings oblong, pure white; keel spirally twisted to the right (of the flower), into the concavity of the standard. Ovary oblong, compressed, appressopuberulous: style villous beneath towards the stigma. Legume scarcely more than an inch in length, tumid from the seeds, slightly compressed, warty along the sutures, sub-glabrous, 3-seeded: seeds white, size of the common pea of Europe, irregularly many-sided, from pressing against each other in the pod.

The seeds of this species of *PHASEOLUS* have not only the appearance but also a great deal of the sweet taste of the common Pea (*PISUM SATIVUM*). It continues to bear throughout the year, is very prolific, and deserves to be more generally cultivated than it at present is. The name of *Hibbert Pea* is commonly given, from its having been, accord to report, introduced into this Island, from Madeira, by one of the Hibbert Family.

### 5. *Phaseolus fœcundus*. *Prolific or Hibbert Bean*.

Twining hispidulous, leaflets ovato-deltoid bluntish apiculated, racemes shorter than the leaf, legumes scimitar-shaped glabrous 2-3-seeded, seeds white ovali-spherical.

HAB. Cultivated and growing wild.

FL. Throughout the year.

Root and lower part of the stem perennial: branches herbaceous, subterete, compressed, striated. Leaflets scarcely acuminate, apiculated, thin, hispidulous. Racemes axillary, at first very short, but afterwards elongated: peduncle striated, puberulous: pedicels in clusters of 2-3, furnished at their insertion with minute ovate acute bracteas. Calyx bibracteolated, minutely puberulous; upper lip subentire; under 3-dentate, with the teeth acute. Standard emarginate, concave, externally puberulous, greenish: wings pure white, subspathulato-oblong; keel greenish, spirally twisted between and above the wings, into the concavity of the standard. Ovary oblong, compressed, minutely puberulous, 3-ovuled. Legume 2 inches in length, compressed, narrow towards the base, broad and beaked with the remains of the style at the apex: seeds usually 2, ovaliturgid, white.

This bean is well deserving of cultivation, and is little inferior to the Lima bean, to which indeed it bears a consider-



able resemblance. It bears throughout the year, and is very prolific. When young and dressed for table it resembles in taste the English Pea. I have met with it growing wild in fences in Liguanea.

\* \* *Herbaceous ; annual.*

6. *Phaseolus saccharatus.* *Sugar-Bean.*

Twining hispid, leaflets ovato-lanceolate subcordate mucronate, racemes shorter than the leaf, upper lip of the calyx subemarginate, legume acinaciform, seeds compressed.

HAB. Cultivated.

FL. Throughout the year.

Stem angulose, hispid with reverted hairs. Leaflets hispidulous along the nerves, especially on the under surface, nearly 6 inches long, and  $1\frac{1}{2}$  broad: petiole elongated, angulose, minutely hispidulous above. Stipules small, deltoid, acute, fleshy at the base: stipels somewhat oblong. Racemes axillary. Flowers small, white, 3 together, (the centre one usually abortive) pedicelled: pedicels half an inch in length. Bracteas 3 at the insertion of each cluster of pedicels, small, oblongovate. Calyx bibracteolate, minutely puberulous; upper lip subentire (or subemarginate); the under 3-fid. Standard green, obliquely reflected, concave; wings of a pure white, oblong, concave; keel spirally twisted. Stamens with one of them free, and thickened at the base. Ovary subglabrous (under the glass minutely puberulous): style hairy on the under surface towards the stigma. Legume acinaciform, mucronate, compressed: seeds 2-3, compressed, white or of a blood-red colour.

The Sugar-bean is very generally cultivated in the Lowlands, where it bears abundantly in the warmest situations. It does not, however, thrive in the mountains. Of the species enumerated by De Candolle, it agrees in some respects with the character of *P. XUARESII*.

7. *Phaseolus latisiliquus.* *Broad-Bean.*

Stem twining minutely hispidulous, leaflets ovate rounded and subcordate at the base subglabrous, racemes shorter than the leaf, legume broad knife-shaped, seeds 3 broad compressed white.

HAB. Cultivated.

FL. December, January.

Stem angulose. Leaflets apiculated, subglabrous, thin: petiole 4-5 inches long, anguloso-sulcated. Stipules small, ovato-

lanceolate, deciduous. Racemes axillary; rachis angulose, puberulous: pedicels in clusters of 3-4, short: flowers greenish-white, numerous, but only 1-2 of each raceme perfecting the legume. Bractees at the base of the pedicels, minute, ovato-lanceolate. Calyx bibracteolate, minutely puberulous. Standard greenish, roundish, emarginate, concave; wings obovato-cuneate, of a pale-buff colour. Ovary puberulous: style pubescent towards the stigma: stigma oblongo-capitate. Legume scimitar-shaped, an inch and a half in breadth, compressed, subulate at the apex, glabrous: seeds 3, large, flat, white.

A very good variety of pulse, not inferior to the Sugar-Bean.

### 8. *Phaseolus compressus*. *Dutch-runner*.

Twining hispid, leaflets ovate acuminate, racemes peduncled shorter than the leaf, pedicels in pairs, legumes compressed subtorulose mucronate, seeds compressed.

*De Cand. Prod.* II. 392.

HAB. Cultivated.

FL. Throughout the year.

Stem herbaceous. Leaflets broad-ovate, acuminate, 3-nerved, hispid. Stipules ovato-subfalcate on the side towards the petiole. Raceme axillary, short, peduncled, about 4-flowered: pedicels in pairs, about half an inch in length, filiform, subglabrous, furnished at their insertion with a broad-ovate acuminate concave veined ciliated bractea to each pair. Bracteoles, a pair of them, broad-ovate acuminate concave below each flower. Calyx glabrous; upper lip subentire; lower lip 3-fid with the middle lobe the longest. Standard greenish, obliquely reflected, concave, subemarginate: wings elliptic, clawed. Stamens monadelphous with the tube slit above. Ovary linear, compressed, green, pubescent: style pubescent towards the stigma, which is obtuse. Legume 5-6 inches long: seeds white.

Of this species there are two varieties; *α. humilis*, or the *poor man's pea*: *β. major*, the *common Dutch runner*. They are both much esteemed, and are very generally cultivated.

### 9. *Phaseolus nana*. *Dwarf Kidney-bean*.

Erect hispid, leaves ovate acuminate hirsute, racemes sessile usually 6-flowered, pedicels in pairs with the lowest pair axillary, legume pendulous subtorulose with a long beak, seeds oblong subcompressed.

*Phaseolus erectus major*, *siliqua tereti*, *semine rubro*, *Sloane*, I. 183. t. 115. f. 2. 3.

HAB. Cultivated.

FL. Throughout the year.

Erect, a foot or more in height: branches angulose, hispid. Leaflets deltoideo-ovate, acuminate, hirsute with some of the hairs minutely uncinatè: petiole subtetragonal, channelled above. Stipules deltoideo-ovate, veined, thickened and reflected at the base: stipels lanceolate. Raceme subterminal, an inch and a half in length, about 6-flowered, rachis angulosostriated, pubescent, thick at the base, but diminishing as the pedicels are given off: pedicels geminate, with the lowest pair in the axilla formed by the leaf and peduncle, bracteated. Flowers of a pale rose or lilac. Calyx bibracteolated, externally puberulous with minute uncinatè hairs: upper lip emarginate or acute: under 3-fid, with the divisions acute, and the middle one the longest. Standard reflected, emarginate; wings elliptic, nearly as large as the standard; keel and stamens as in the generic character. Ovary linear, compressed, appressopubescent: style glabrous, but pubescent towards the stigma. Legumes pendulous.

According to De Candolle, this is to be considered as merely a variety of *PHASEOLUS VULGARIS*.

There are several varieties of this species cultivated in Jamaica: 1. *One-coloured*; with seeds black, yellow, red, &c. The *black-betty* bean belongs to this variety. 2. The *streaked*; seeds marked with broad linear curved spots. 3. The *variegated*; seeds marked with rubiginose, leaden, &c., more or less rounded spots. 4. The *saponaceous*; with the back of the seeds white, but the sides and concavity marbled with spots, so as to resemble a common soap-ball.

The dwarf Kidney-bean is a native of the East Indies, but is now extensively cultivated in this Island. It is a favourite dish among the French and Spanish Catholics, the formulary of whose Church enjoins a number of meagre days, on which the people are expected to subsist, in a great measure, on pulse, with the addition of vegetable oil.

The young pods are served up as a vegetable, under the name of *French-beans*. The Beans when full, but not dry, are used in stews or soup. The leaves are boiled, and employed among the Nubians as an esculent.

The best crops of this Bean are procured from seed sown during Spring and Autumn. A scanty return is obtained during the cool or very hot period of the year. It is very fruitful, and comes into bearing in the course of 5 or 6 weeks.

#### 10. *Phaseolus lathyroides*. *Crimson-flowered Phaseolus*.

Stem erect glabrous, leaflets oblong acuminate, ra-

cemes longer than the leaf subspiked, standard concave half the length of the wings, legumes tereti-subulate.—*De Cand.*

*P. erectus* lathyroides, flore amplo coccineo, *Sloane*, I. 183. t. 116. f. 1.—*P. minor erectus pratensis*, siliquis gracilibus, *Browne*, 291.—*P. lathyroides*, *Swartz*, *Obs.* 280.

HAB. Common in damp situations.

FL. Principally towards the end of the year.

A foot or more in height: branches simple, erect, terete, glabrous. Leaflets glabrous above, pubescent beneath: petioles angulated, coloured. Stipules acuminate. Peduncles long, terete, pubescent, many-flowered. Flowers shortly pedicelled, generally in pairs, blood-coloured. Upper lip of the calyx bidentate: lower 3-dentate. Standard clawed, subrotund, emarginate, concave, reflected, pale red: wings larger than the standard, deep crimson: keel whitish. Stamens diadelphous. Ovary terete: style subulate: stigma incrassated, pubescent beneath. Legume cylindrical, many-seeded: seeds subrotund, brownish.

The flowers are rather showy, and might claim for the plant a place in the garden.

## XXV. DOLICHOS.

Calyx bibracteolated, campanulate, 5-dentate, with 2 of the teeth approximate or partially coalescing at the base. Standard subrotund, sulcated with 2–4 diverging callosities at the base; wings oblong, obtuse; keel incurved nearly at a right angle, obtuse, neither spirally twisted, nor turned to one side in the slightest degree. Stamens diadelphous (9 and 1): anthers subrotund. Style compressed, bearded beneath from the middle to the apex. Legume compressed, linear, bivalved, partially furnished with cellulose isthmi between the seeds; valves neither winged nor nerve-bearing: seeds ovate, more or less compressed, with the hilum oval small.—*De Cand.*

Herbaceous or suffruticose, generally twining: cauline stipules acute; leaves pinnato-3-foliate; leaflets stipellated; racemes axillary.—The name was applied by Dioscorides to a plant, supposed to be the common Kidney-bean.

### 1. *Dolichos tuberosus*. *Yam-Bean*.

Stem fruticose twining, root tuberose, leaflets subrotund acuminate, racemes pedunculated elongated,



legumes straight pendulous compressed torulose rufo-villous.

*Lam. Encycl.* II. 293.—*Plum. Sp.* t. 220.

HAB. Cultivated.

FL. Throughout the year.

Flowers white. Seeds red. The root is formed of a number of simple cord-like fibres, several feet in length, stretching under the surface of the ground, bearing in their course a succession of tubers.

The beans are poisonous; but the root affords a very plentiful supply of very wholesome food. The produce of three plants is usually sufficient to fill a bushel basket. The tubers may either be boiled plain, in which state they are a very good substitute for yams and other roots in common use; or they may be submitted to a process similar to arrow-root, and a starch obtained. This starch is of a pure white, and is equal in every respect to arrow-root. To the taste it is very palatable, is easily digested, and is employed for custards and puddings. Even the trash left after obtaining the starch, and which in the preparation of arrow root is lost, may, when thoroughly dried, be formed into a palatable and wholesome flour.

A very excellent flour may also be obtained by slicing the tubers, drying them in the sun, and then reducing to a powder.

This plant is deserving of being more generally cultivated than it has hitherto been. It ought in a great measure to supersede the arrow-root in cultivation. It can be planted at any season of the year, and the roots are fit for digging in the course of four or five months: the return is infinitely greater than that from arrow-root, and the proportion of starch also is more abundant, so that it can be brought to market at so cheap a rate, as to admit of being employed by the calico-printers in place of potato-starch.

The Yam-bean has of late years been partially cultivated in this Island. It is said to have been introduced from Martinique. It is probably a native of Java, as Perrotet (*Ann. Marit.* 1812, page 89,) informs us that the roots form, in that Island, as well as in other districts of India, an article of food.

## 2. *Dolichos filiformis.* *Filiform Dolichos.*

Leaflets elliptico-ovate of a length twice that of the breadth, legumes falcate.

*Dolichos herbaceus minor*, *Browne*, 294.—*Dolichos filiformis*, *Linn. Ann.* V. 402?

HAB. Lower hills on fences. St Andrew's and Port-Royal. Near Old-Harbour.

FL. October—November.

Herbaceous, filiform, twining, pubescent. Leaflets ovate, ob-



tuse, mucronate, subglabrous above appresso-pubescent beneath. Stipules deltoideo-subulate, ciliated. Racemes axillary solitary, at first shorter than, but afterwards of nearly the same length as the leaf. Flowers purple, rose-coloured, 3 together, pedicelled, furnished with lanceolato-subulate ciliated bractees at the insertion. Calyx bibracteolated, minutely puberulous externally: upper lip entire, broad lanceolate; lower 3-partite, with the divisions lanceolato-subulate. Standard roundish-oval, purple, with a green nerve running down the back externally, and with a greenish yellow spot at the claw internally: wings shorter than the keel, which is in two pieces and adhering towards the apex. Stamens monadelphous: anthers white. Ovary terete, linear, sericeo-villous: style with the stigma simple. Legume falcate, compressed, with the sides at first densely, afterwards sparingly appresso-sericeous, many-seeded.

### 3. *Dolichos luteus*. *Yellow Sea-side Bean*.

Stem twining herbaceous glabrous, leaflets ovate acuminate mucronate subglabrous, racemes longer than the leaves, legumes subcylindrical appresso-pubescent.

*D. maritimus minor repens*, pedunculis longioribus, siliquis polyspermibus gracilibus teretibus, *Browne*, 293?—*D. luteus*, *Swartz*, *Fl. Ind. Occ.* 1246.—*De Cand. Prod.* II. 398.

HAB. Common along the sea shore.

FL. December—May.

Herbaceous, twining, terete, glabrous. Leaflets petiolulated, ovate, acuminate with the apex mucronate, 3-nerved at the base, subglabrous. Stipules lanceolate, auriculated externally at the base. Peduncles axillary, longer than the leaf. Flowers racemed, yellow. Pedicels short. Calyx bibracteolated; upper lip entire, ovate, acute; under lip 3-fid, with the lobes ovato-lanceolate, acute. Standard subrotund, subemarginate, sulcated and bicallose at the base; wings oblong; keel of two pieces adhering towards the apex, incurved at nearly a right angle. Stamens 9 and 1. Style bearded beneath towards the stigma, which looks downwards, with a glandulose slightly recurved apicula above. Legume about 3 inches in length, subcylindrical, slightly curved, appresso-pubescent, of a blackish colour: seeds about 10, slightly compressed.

The upper lip of the calyx, according to *Swartz*, is emarginate, and the legume is described as glabrous. I have not found this to be the case in any of the specimens I have hitherto met with.

### 4. *Dolichos unguiculatus*. *Hook-podded Dolichos*.

Stem twining, leaflets those of the stem broad ovate,

those of the branches sub-3-lobate hispid, peduncle twice the length of the petiole bearing in a head 3-5 subsessile flowers, of which only two are perfected, legumes subcylindrical with an unguiculated beak, about 14-seeded.

*Jacq. Hort. Vind. I. t. 23.*

HAB. Cultivated.

FL. Towards the end of the year.

Stem perennial. Leaflets of the branches sub-3-lobate, with the central lobule apiculate; the lateral ones rounded and obsolete; 3-nerved, hispid: petiole 6-7 inches, terete, striated, sulcated, glabrous: petiolules short, incrassated, deep-green, pubescent, especially on the upper surface. Stipels small, ovoid. Peduncle axillary, solitary, terete, anguloso-sulcated, hispidulous, bearing in a head 4-6 crowded subsessile flowers, of which only two in general perfect the fruit. Calyx glabrous, nerved; divisions subulate. Standard large, roundish, emarginate, bicallose near the claw, reflected, greenish-yellow externally, purpurascent and veined internally; wings purpurascent; keel free below, concrete above. Stamens 9 and 1. Ovary linear, green, glabrous, straight: style with the under surface barbato-villous: stigma subcapitate, greenish, with a conical glandule on the upper surface. Legumes about 6 inches long, straight, subcylindrical, slightly compressed: seeds 14, of a light reddish buff colour; hilum white, surrounded by an olive coloured border.

Usually two, but never more, of the flowers perfect the fruit. This bean, from the pods standing out together like a pair of horns, commonly receives the name of "*Cuckold's Increase*." The stem at its base is woody; the branches herbaceous. It continues to flower and bear fruit for upwards of a year, climbs to a great distance, and is very prolific. The bean when young is tender, and resembles in taste the common pea.

### 5. *Dolichos sesquipedalis.* *Asparagus Bean.*

Stem twining glabrous, leaflets broad-ovate, legumes subcylindrical mucronato-uncinate at the apex smooth very long torulose at the seeds.—*De Cand.*

*Jacq. Hort. Vind. I. t. 67.*

HAB. Cultivated.

FL. Throughout the year.

The pods of this species are a foot and a half or more in length, and are used in the unripe state, dressed in the same manner as French Beans.

6. *Dolichos sphærospermus*. *Black-eyed Pea*.

Stem erect, branches glabrous, leaflets ovate sub-acute, peduncles elongated bearing a few flowers at the apex, legumes straight, seeds spherical with the hilum black.

*Phaseolus erectus minor*, semine sphærico albido, hilo nigro, *Sloane*, I. 184. t. 117.—*P. erectus*, siliquis gracilibus teretibus polyspermis, seminibus subrotundis hilo nigro, *Browne*, 392.—*P. sphærospermus*, *Linn. Sp. Pl.* 1018.—*Dolichos sphærospermus*, *De Cand. Prod.* II. 400.

HAB. Cultivated in the plains.

FL. Throughout the year.

Herbaceous, a foot or more in height, somewhat twining; branches subterete, anguloso-sulcated, glabrous. Leaflets ovate or oval, obtuse, apiculated, nerved, reticulato-venose, subglabrous (minutely ciliated and strigose on the under surface of the nerves): petiole elongated, sub-3-gonal, striated. Stipules oblongo-ovate, auriculato-extended at the base, membranaceous. Peduncles axillary, longer than the leaf, anguloso-sulcated, bearing in a head about 6 sessile flowers in 'pairs, with a rounded tubercle between each, at its extremity. Calyx tubulose, to the glass rough, spotted with purple; upper lip bifid, with the divisions subulate; under lip 3-fid with the divisions spreading, lanceolato-ovate. Standard roundish, slightly emarginate, sulcated towards the base, and furnished with two pairs of diverging callosities, externally greenish, internally pale yellow; wings tinged with lilac, irregularly obovato-oblong; keel bifid at the base, coherent above, and also below the apex. Stamens diadelphous: anthers yellow. Ovary linear: style bearded beneath for half its length: stigma hispidulous, bearing a conical glandule on its back. Legume 6–8 inches long, cylindrical, when ripe of a clay-colour, many-seeded: seeds size of a very small pea, nearly spherical, white, with a black hilum.

This is a very prolific and excellent variety of the pulse kind. When used green it is scarcely inferior, and when dry, is in the opinion of many, superior to the pea of Europe.

## XXVI. LABLAB.

Calyx campanulato-tubulose, 4-fid; upper lip broad, lower of 3 acute lobes. Standard sulcato-channelled, with 4 parallel callosities: keel curved at a right angle. Stamens diadelphous. Style bearded beneath: stigma terminal. Legume plano-compressed, tuberculoso-muricated along the sutures, with cellulose interstices separating the seeds: seeds 4, or

fewer by abortion, ovate, compressed, with a fungous callosity arising from the umbilicus.

Herbaceous or suffrutescent twining plants; leaflets pinnato-3-foliate; pedicels semiverticillate.

1. *Lablab vulgaris*. *Bonavist Bean*.

Legumes oblongo-ventricose acinaciform, pericarp easily withdrawn, seeds ovate slightly compressed, basilar glandule hemispherical sulcated.—*De Cand.*

*Phaseolus maximus perennis*, floribus spicatis, albis, speciosis, siliquis brevibus latis, semen album hilo albido fere circumdante, *Sloane*, I. 177. t. 113.—*Dolichos Lablab*, *Linn. Sp.* 1019.—*Lablab vulgaris*, *Savi, Diss.* 19. f. 8.

HAB. Ruinate provision grounds.

FL. Throughout the year.

There are two varieties in the island: *α. albiflorus*, with the flowers white, bracteoles shorter than the calyx, seeds of a pale ferruginous colour: *β. purpureus*, with the flowers purple, bracteoles of the same length as the tube of the calyx, seeds of a dark purple, stem purpurascens. The former is the most common. The stem is suffrutescent at the base, and appears to be perennial. It is continually in bearing, and lasts for several years. The pods are apt to have a disagreeable heavy smell, from being visited by a large green bug. The bean is very coarse, scarcely ever cultivated, and seldom made use of, except in times of scarcity. It is originally a native of Egypt, where it forms an important article of food to the poorer class of the inhabitants. The pods, according to M. Achren (*Journ. de Chemie Medic.* III. 102.), contain gallic acid.

## XXVII. CANAVALIA.

Calyx tubulose bilabiate; under lip 3-dentate; upper of two rounded lobes. Vexillum large, bicallose, the callosities parallel: wings stipitate, oblong, auriculated: keel dipetalous. Stamens monadelphous, or with the 10th subadherent. Legume compressed, 3-keeled along the back, furnished with a cellulose membrane among the seeds: seeds ovali-oblong; hilum linear.

Herbaceous or suffruticose; branches twining; leaves pinnato-3-foliate; racemes axillary, or opposite to a leaf, many-flowered; pedicels 3-nate. Flowers large, purpurascens. I have been obliged to modify the generic character as regards the calyx, in order to admit into the genus *CANAVALIA* *ALTIS-SIMA*. *Canavali* is the Indian name of *C. ENSIFORMIS*.



1. *Canavalia gladiata*. *Sword Bean*.

Leaflets ovate acute, legumes the length 5 times the breadth slightly curved towards the apex, racemes longer than the leaves, standard roundish emarginate.

*Jacq. Ic. Rar. t. 560?*

HAB. Native of the East Indies. Cultivated in gardens to cover arbours.

FL. September.

Stem suffruticose, lasting for several years: branches glabrous, towards their extremities herbaceous, angulose. Leaflets about 4 inches long, and  $2\frac{1}{2}$  broad, subacuminate with the apex acute, glabrous. Racemes longer than the leaves, pendulous. Flowers erect, upon short pedicels, of a pink colour approaching to purple. Vexillum roundish, emarginate. Legume a foot long, and 2 inches broad, slightly curved towards the apex, terminating in a recurved subulate point. Seeds of a rufous colour, size of a pigeon's egg, rattling when ripe in the pod.

According to the specific character of De Candolle, the vexillum is oblong. This, however, is not the case in the specimens with which I have met.

2. *Canavalia ensiformis*. *Overlook or Horse Bean*.

Leaflets ovato-oblong acute, legumes 5 times or more in length than in breadth.

*Phaseolus maximus siliqua ensiformi*, *Sloane*, I. t. 114. f. 1, 2, 3.—*Phaseolus suberectus major*, *Browne, Jam.* 291.—*Dolichos ensiformis*, *Linn. Spec.* 1022.

HAB. Planted along the margin of provision grounds.

FL. Warmer months.

Annual. Stem seldom more than 3 or 4 feet in height, at first suberect, afterwards twining, angulose, coloured, pubescent with the hairs appressed. Leaflets shortly petioluled, oblong, slightly acuminate, sharp at the base, pubescent. Stipules small, subulate, with a small gland-like excrescence at the base. Racemes axillary, solitary, 3-4 inches long; peduncle terete, puberulous. Flowers rather large, purple, shortly pedicelled, 3-4 together on a subglobose fleshy excrescence. Calyx with the upper lip broad, emarginato-bilobed; the lower 3-fid, with the segments short, lanceolate, acute. Standard erect, roundish, emarginate; wings spathulato-falciform, partially accrete to the keel. Stamens sub-monadelphous (*i. e.* the tenth filament distinct at the base), coalescing above. Ovary linear, compressed, sericeo-pubescent: stigma capitate. Legume 10-13-seeded, about a foot long, scimitar-shaped, 3-keeled along the suture to which



the seeds are attached : seeds oblong, plump, white with the hilum brown.

Sloane considers this species to be indigenous to the Island, and says that the seeds were, in his time, used by some as food, and given to fatten hogs. I do not find, however, on inquiry, that any use is at present made of them, except that they are commonly planted, by the Negroes, along the margin of their provision grounds, from a superstitious notion, probably of African origin, very generally entertained, that the Overlook fulfils the part of a watchman, and, from some dreaded power ascribed to it, protects the provisions from plunder. Even the better informed adopt the practice, although they themselves may not place confidence in any particular influence which this humble plant can exercise, either in preventing theft, or in punishing it when committed.

### 3. *Canavalia rosea*. *Purple-flowered Sea-side Bean*.

Stem creeping ascending, leaflets elliptico-subrotund glabrous, legumes lineari-oblong shortly acuminate.

*Dolichos roseus*, Swartz, *Fl. Ind. Occ.* 1243.

HAB. Common on the sands by the sea-shore.

FL. Throughout the year.

Root perennial. Stem suffrutescent at the base ; branches herbaceous and annual, at first creeping, afterwards ascending by the support of neighbouring shrubs, terete, angulato-striated, minutely puberulous with reverted appressed hairs at their extremities. Leaflets apiculated, subglabrous, scarcely shining, thin, nerved : petiole terete, channelled above. Stipules small, fleshy, subauriculated at the base ; stiff and erect above. Peduncles axillary or opposite to a leaf, solitary, longer than the leaf, subflexuose, bearing several rose-coloured shortly pedicelled flowers inserted in pairs on roundish gland-like nobs. Calyx tubulose, subinflated, lineated, puberulous ; upper lip bifid with segments rounded : under lip 3-dentate with small approximating teeth. Standard obcordate, purple, with 2 yellow callosities at the base ; wings falcate ; keel bifid at the apex and at the base. Stamens 10. Ovary linear, appresso-pubescent : style subulate, curved : stigma obtuse. Legume 4 inches or more in length, and nearly one broad, linear, compressed, glabrous, 3-keeled on the back, with a straight sharp beak : seeds within a white cellulose membrane, of a blackish colour, oval, compressed.

### 4. *Canavalia altissima*. *Lofty-climbing Canavalia*.

Leaflets elliptico-oblong emarginate or obtuse with

an awn glabrous, racemes opposite to a leaf, legumes pubescent 7–8 times longer than broad.

*Dolichos altissimus*, Jacq. *Amer.* 203, t. 182. f. 85.—*Mucuna altissima*, De Cand. *Prod.* II. 405.

HAB. Common in woods. Port-Royal and St John's Hills.

FL. August, September.

Climbing to a great height on trees, and suspending from thence its long pendulous branches, adorned with racemes of beautiful flowers. Leaflets irregular in their shape, elliptic or oblong, somewhat obovate, emarginate, obtuse with an awn, glabrous. Racemes opposite to a leaf, 6–12 inches long, simple. Peduncle subterete, slightly angulose: flowers purple, showy, very shortly pedicelled, 3 together, inserted on a subglobose fleshy excrescence. Calyx 2-lipped, subglabrous; under lip 3-fid, with the middle lobe tooth-like and the lateral ones obtuse, approximating; upper lip sub-bilobed from the apex being reflected; lobes rounded. Standard reflected, purple, rounded, emarginate; wings short, revolute, adhering at their middle to, and of the same colour as the keel, which is dipetalous but united at the apex. Stamens submonadelphous: anthers oval. Ovary oblong, appressed-pubescent: style longer than the filaments: stigma obtuse. Legume 7–8 inches long, and 1 broad, compressed, slightly curved, uncinatate at the apex, pubescent with appressed hairs; a grooved keel along the back, and a parallel sharp keel on each side at the distance of rather less than half an inch from the back: seeds 11 in number, oval, compressed, of a dirty white; hilum linear.

. Jacquin describes this species as common in the woods of Martinique.

## XXVIII. MUCUNA. Cowitch.

Calyx campanulate, bilabiate: inferior lip 3-fid, with the divisions acute, and the middle one more produced; upper lip broad, entire, obtuse. Standard assurgent, shorter than the wings or keel; wings oblong, length of the keel; keel oblong, straight, acute. Stamens diadelphous; 5 of the anthers oblongo-linear; 5 ovate, hirsute. Legume oblong, torose, bivalve, with cellulose partitions: seeds roundish, cinctured circularly with a linear hilum.—*De Cand.*

Herbs or shrubs, ascending to a considerable height: leaves pinnato-trifoliate; racemes axillary, generally pendulous; legumes usually hispid with innumerable very fragile hairs readily penetrating the skin and stinging.—*Mucuna* is the Indian name of the following species.

1. *Mucuna urens*. *Yellow-flowered Cowitch*.

Flowers racemose, legumes with transverse lamellar furrows stinging, leaflets nitido-sericeous beneath.

*Phaseolus Brasilianus frutescens*, lobis villosis pungentibus maximis, *Sloane*, I. 178.—*Zoophthalmum siliquis majoribus hirtis transverse sulcatis*, *Browne*, 295.—*Dolichos urens*, *Jacq. Amer.* 202. t. 182. f. 84.—*Stizolobium urens*, *Pers. Ench.* II. 299.—*Mucuna urens*, *De Cand.* II. 405.

HAB. Not so common as the second species. Near Shroeter's Fording, St Andrew's mountains. Bath, St Thomas in the East.

FL. May.

Ascending to a great height. Racemes of 12–18 flowers, umbellated, pendulous: peduncle about 3 inches in length, sericeo-pubescent: pedicels rather more than half an inch in length, slightly compressed, situated at the extremity of the peduncle, all of them of nearly the same length, giving an umbellated appearance to the raceme. Bractees roundish, concave. Flowers large, yellow. Calyx nerved, ventricose, stinging-pubescent externally. Ovary hairy; hairs shining, of an orange tinge: stigma obtuse, surrounded with white hairs. Legume about 3–6 inches long transversely ribbed by prominent lamellar furrows, covered partially with stinging brownish hairs: the seeds which are large, orbicular, compressed, and encircled by the hilum, receive the name of *yeux bourrique*, *asses' eyes*, from the French colonists, and of *horse-eye bean* from the English. They have many virtues ascribed to them by the superstitious.

2. *Mucuna pruriens*. *Purple-flowered Cowitch*.

Flowers racemose, legumes stinging, valves slightly keeled, the leaflets acuminate hirsute beneath, middle one rhomboideal lateral ones externally dilated.—*De Cand.*

*Phaseolus utriusque Indiæ lobis villosis pungentibus minor*, *Sloane*, I. 37.—*Stizolobium spicis multis pendulis alaribus, floribus ternis*, *Browne*, 290.—*Dolichos pruriens*, *Linn. Spec.* 1020.—*Jacq. Amer.* 201. pl. 122.

HAB. Common in waste land, and in neglected cane pieces. Along river courses and upon fences.

FL. November, December.

Stem herbaceous, terete, twining. Leaflets ovate, obtuse, apiculated, villous, with pungent hairs; the two lateral leaflets unequally divided by the midrib, i. e. the lower portion is the largest: petiole 6 inches, terete, striated, pubescent. Stipules

subulate. Racemes axillary, pendulous: flowers pedicelled, in threes, showy, purple, of a disagreeable alliaceous smell. Calyx pilose. Wings and keel twice the length of the standard. Ovary hairy: style with hairs tufted. Legume about the size of the fore-finger, figure of an Italic *s*, densely covered with stinging hairs of a brownish colour: seeds oblong, variegated, with the hilum white.

The root of this plant is stated by Browne, to be a powerful diuretic and cleanser, and the vinous tincture of the pods to be a certain remedy for dropsy. Grainger says, that a fowl stuffed with Cowitch, and made into broth, has *sometimes* carried off a dropsy by stool or urine. The plant, however, is principally known in medicine from the sharp setæ which cover the pods, having been found a valuable remedy in destroying intestinal worms. Their action appears to be, like that of tin filings, merely mechanical, since their efficacy is destroyed by the process of boiling. When the remedy is to be given, the pods are dipt into thick syrup, molasses, or honey, and, after scraping off the hairs or setæ, are withdrawn. Of this mixture, a dessert spoonful is given for several mornings, followed by a brisk purgative, which seldom fails to bring away the worms dead. It may be given with perfect safety, as it is never known to produce any disagreeable effects in swallowing, or any unusual sensation in the bowels. Of late years, it has been neglected, having been in a great measure superseded by turpentine, which is equally efficacious, and more conveniently administered. When the setæ have accidentally come in contact with the hands or with the skin of any part of the body, the stinging sensation may be relieved by rubbing so as to bruise the hairs, and by afterwards smearing the part with oil; or, it is said, that the setæ will attach themselves to the rim of a hat passed over the part, and thus be withdrawn.

## XXIX. CAJANUS. *Pigeon Pea.*

Calyx campanulate, 5-fid; divisions subulate, recurved at the apex; the two upper ones united for some way. Standard large, bicallose at the base; keel obtuse, straight. Stamens diadelphous (9 and 1). Legume oblong, compressed, torulose with oblique strangulations, bivalved. Seeds many, subspherical, separated by membranaceous isthmi.—*De Cand.*

Shrubs, subvelutine; leaves pinnato-trifoliate, with the leaflets stipellated; racemes axillary; pedicels in pairs, from a single bractea; flowers yellow.—*Name*, from *Cajan* or *Cadjan*, the African designation of the Pea.



1. *Cajanus bicolor*. *Pigeon or Congo Pea*.

Standard externally discoloured, legumes 4-5-seeded spotted, stipels nearly equal in length with the petiolules of the lateral leaflets.

*Laburnum humilium*, siliqua inter grana et grana juncta, semine esculento, *Sloane*, II. 31.—*Cytisus fruticosus*, *Browne*, 296.—*C. Cajan*, *Lam. Dict.* II. 249.—*C. pseudo-cajan*, *Jacq. Hort. Vind.* II. t. 119.—*Cajanus bicolor*, *De Cand. Hort. Monsp.* 85.

HAB. Native of the East Indies. Cultivated.

FL. Spring.

A shrub, 5-6 feet in height: branches erect, fastigate, angulose; the angles prominent, downy. Leaflets puberulous above, hoary and velvety, with numerous minute yellow glandules, in the interstices of the reticulated nerves, beneath. Stipels lanceolate, acute. Racemes shorter than the leaves, axillary, erect, of about 8 flowers: peduncle angulose: pedicels terete, filiform, puberulous, elongating on the maturation of the legume. Calyx 5-nerved, discoloured with brownish purple. Wings yellow with an orange-coloured stain. Ovary and the inferior portion of the style villous. Legumes usually 5-seeded, dark purple along the edges and strangulations, pubescent with yellow hairs seated on minute viscid glandules. Seeds spherical, compressed, dotted with purple especially around the hilum.

2. *Cajanus flavus*. *No-Eye Pea*.

Standard externally of an uniform colour, legumes 2-3-seeded, and, as also the calices, not spotted, stipels of the lateral leaflets half the length of the petiolules.

*Cytisus cajan*, *Linn. Spec.* 1041.—*Jacq. Obs.* I. t. 1.—*Plum. ed. Burm.* t. 114. f. 2.

HAB. Native of the East Indies, and now cultivated in all the warm districts of America.

FL. Beginning of Summer.

The general description of the preceding species applies, in nearly every respect, to this which we are at present considering. The exceptions are, that in this the corolla is of an uniform yellow colour, the calyx, seeds, and legume are free of any spots, and the last has very little of that viscidness, which we noticed as belonging to the *C. BICOLOR*. The general appearance of both is very much alike, and they can scarcely, previous to flowering, be distinguished from one another, except that the leaves of the *C. FLAVUS* are rather smaller and finer to the touch.



Of these two species the No-Eye Pea is the most delicate, being, in the green state, very little inferior to the English pea, and, when dried and the cuticle removed, equal to the split peas we receive from Europe. The other species is coarser, and made use of principally by the Negroes, and require, in the dried state, a tedious boiling process before they can be softened.

From the two species being frequently, through carelessness, planted close to one another, we may occasionally meet with hybrid varieties. When once established they stand for several years. The leaves are annually shed, and are reproduced with the flowers in the early months of Summer. The crop is gathered during the months of Autumn. No particular care or trouble is required in the cultivation of these shrubs, and they thrive in the poorest land. They are said indeed to improve the soil on which they grow, by the decay of the leaves, which are annually shed in great profusion. There are few tropical plants indeed so valuable. They are to be found around every cottage in the Island, growing luxuriantly in the parched Savannah, and mountain declivity, as well as in the more fertile and seasonable districts.

### XXX. ERYTHRINA.

Calyx tubulose, with the mouth truncated, subdentate, or spathaceous. Standard very long, oblong; wings and keel dipetalous, much shorter than the standard. Stamens diadelphous, straight, with the 10th, either slightly united to the rest, or free and much shorter, or rarely deficient. Legume long, torulose, 2-valved, many-seeded: seeds ovate, with the hilum lateral.

Low trees or shrubs, rarely herbaceous; leaves 1-paired with an odd one; racemes elongated; flowers scarlet, pedicelled, ternately approximated.—*Name*, from *ερυθρός* red, on account of the scarlet colour of the flowers.

#### 1. *Erythrina corallodendrum*. *Coral-bean tree*.

Stem arboreous aculeate, branches and petioles unarmed, leaflets broad-rhomboido-ovate glabrous, calyx truncated sub-1-dentate, standard lineari-oblong.

Coral arbor, *Sloane*, II. 178. f. 1.—*Arborea spinosa et non spinosa, foliis rhombœis pinnato-ternatis*, *Browne*, 288.

HAB. Common.

FL. April—July.

A tree of irregular growth: the stem and a few of the

older branches aculeate; the younger branches unarmed, terete, glabrous. Leaflets petiolulated, the terminal one rhomboideo-ovate, the lateral ones broad ovate, unequilateral and as if truncated at the base, bluntish, glabrous (when young puberulous beneath), sub-3-nerved at the base (the other nerves being less distinct, and wavy), delicately veined: petiole elongated, subterete, unarmed, glabrous: petiolules greenish, when young puberulous. Stipules lanceolate, bluntish, deciduous: stipels small oblong, glanduloso-porose at the apex. Racemes axillary, length of the leaf, solitary, bearing a number of showy bright scarlet pedicelled flowers, 2-3 together. Calyx  $\frac{1}{4}$  of an inch in length, subcampanulate, truncated, subentire with exception of a thickened bluntish tooth beneath. Standard 2 inches in length, rather longer than the stamens, lineari-oblong, obtuse, straight, of a bright scarlet colour: wings nearly twice the size of the keel, of a pale blush colour, veined, somewhat obovate in shape: keel in two pieces, dimidiato-orbiculate. Stamens 9 and 1 (the 10th, accrete to the others for  $\frac{1}{4}$  of an inch), unequal in length, of a crimson colour: anthers lineari-lanceolate. Ovary pedicelled, linear, compressed, subglabrous: style elongated, subulate, slightly curved, tinged with crimson: stigma simple. Legume 6-7 inches long, cylindrical, torulose, with a long filiform beak at the apex, 4-6 seeded: seeds oval, scarcely compressed, of a bright scarlet with a black spot below the hilum.

This species may be distinguished from the following, by the flower being of a deep crimson, and by the standard being narrow and not reflected.

## 2. *Erythrina velutina*. *Velvety Erythrina*.

Stem arboreous prickly, leaflets rounded at both ends stellato-pubescent above hoary and stellato-velutino-tomentose beneath, the terminal leaflet transversely elliptic, calyx spathe-shaped 5-denticulated tomentose, standard elliptic reflected.

*Willd. Sp. Pl.* III. 904.—*H. B. & Kunth, nov. gen. Am.* VI. 435.—*Bot. Mag.* 3227.

HAB. In the plains.

FL. April.

A tree, 20-30 feet in height: branches spreading, armed with scattered short black conical prickles, velutino-tomentose towards their extremities. Leaves situated at the ends of the branches: leaflets petiolulated, broad-ovate, (the terminal one being broader than it is long) rounded and sometimes emarginate at the apex, nerved with the lowest pair of nerves arising from the base of the mid-rib, rendering the leaf sub-3-nerved, veined, green and stellato-puberulous above, rufescenti-

canescent and furfuraceo-tomentose with stellated hairs beneath : petiole terete. Stipules lanceolato-subulate, externally velutine, deciduous : stipels oblong, green, glandular. Racemes axillary, longer than the leaf, 8–10 inches in length : common peduncle terete, velutino-tomentose : flowers in threes, on velutino-tomentose inch-long pedicels, showy, vermilion scarlet. Calyx spathaceous, cleft on one side, 5-denticulated with the teeth blunt, externally velutino-tomentose. Standard large, broad elliptic, emarginate, reflected : wings and keel, each of two pieces, subequal, not longer than the calyx, veined, tinged with purple. Stamens 10, diadelphous, with the tenth stamen adhering to the rest for a short distance, but readily separable, alternately short and long, longer than the standard ; filaments scarlet : anthers purple. Ovary stipitate, (?) cylindrical, niveo-tomentose : style glabrous, subterete, angulose, scarlet : stigma subcapitate, greenish. Legume 2–4-seeded, torulose, velutine : seeds oval, usually with a depression at one end, scarlet with a small roundish black spot at one end of the hilum.

This species is very common in the neighbourhood of Kingston. It thrives in the mountains, but does not perfect, in such situations, the seed. The leaves are deciduous about Christmas, and the branches remain bare for several weeks, the new foliage being preceded by the flowers. I have no doubt but that it has been introduced. According to Kunth, it is a native of the Caraccas. It is employed in making fences ; but it does not appear to be well adapted for the purpose. The above description was drawn out, previous to seeing that by the Rev. Mr Lowe in the Botanic Magazine, and with which it will be found to agree.

### Tribe VI. *Dalbergiæ*.

*Legume* 1–2-seeded, indehiscent. *Leaves* not cirrhose.

### XXXI. ECASTAPHYLLUM.

Sepals 5, concrete into a campanulate sub-bilabiate calyx ; upper lip emarginate ; lower 3-fid. Corolla papilionaceous. Stamens 8–10, equally diadelphous, or 9 of which 8 are equally diadelphous and the ninth free. Legume suborbiculate, membranaceous, valveless, bi-ovulate, 1-seeded : seeds reniform ; radicle uncinato-inflected.—*De Cand.*

Subscandent shrubs : panicles axillary, subcorymbose ; leaves impari-pinnate, or simulating a simple leaf from the terminal leaflet alone being present. *Name*, from *ἑκαστος* every one,

and *φυλλον* a leaf, in allusion to the leaves of the species, on which Browne founded the genus, being simple.

1. *Ecastaphyllum Brownei*. *Sea-side May-flower*.

Leaves 1-foliate, leaflet solitary terminal ovate subrotund and subcordate at the base acuminate at the apex pubescent beneath.

*Pterocarpus ecastaphyllum*, Swartz, *Obs.* 275.—*Ecastaphyllum frutescens*, Browne, 299. t. 32. f. 1.—*E. Brownei*, *De Cand. Prod.* II. 420.

HAB. Common in thickets near the sea-shore.

FL. April—June.

A shrubby tree, about 10 feet in height: branchlets spreading, flexuose, striated, sometimes pubescent, usually glabrous. Leaves of one leaflet, alternate, ovate, rounded and subcordate at the base, acuminate, subglabrous above, appresso-pubescent and glaucescent beneath: petiole  $\frac{1}{2}$  of an inch in length, articulated above the middle, terete, ferrugineo-tomentulose or pubescent. Panicle axillary, scarcely longer than the petiole, divided into 3–4 simple branches: flowers numerous, white, shortly pedicelled, subsecund. Calyx tubulated, externally puberulous, sub-bilabiate; upper lip emarginato-bifid; lower 3-fid, with the divisions acute. Standard clawed, obovate, rounded at the apex: wings falcate: keel concave, cleft at the base, emarginate at the apex. Stamens 10, equally diadelphous: anthers minute. Ovary pedicelled, terete, elongated: style incurved: stigma sub-capitate. Legume suborbiculate, compresso-foliaceous, dehiscent, 1-seeded: seeds compressed.

### XXXII. *Amerimnum*.

Sepals 5, concrete into a sub-bilabiate 5-dentate calyx. Petals 5, papilionaceous. Stamens 10, monadelphous, with the sheath cleft above. Legume compressed, 2-valved, 1-celled, 1-seeded; upper suture straight, partially winged; inferior strongly connected.—*De Cand.*

*Name*, derived from *a privative*, and *μεριμνα* care, because the species are hardy and require, in their native regions, no cultivation.

1. *Amerimnum Brownei*. *Meadow May-flower*.

Leaves ovate subcordate acute glabrous.

*Amerimnon fruticosum*, Browne, 288. t. 31. f. 3.—*Amerim-*



num Brownei, *Jacq. Amer.* 199. t. 180. f. 58.—*Swartz, Fl. Ind. Occ.* 1234.

HAB. Thickets, St Thomas in the East.

FL. May.

A shrubby tree, about 10 feet in height: branches long, smooth. Leaves alternate, petiolate, ovate, subcordate or emarginate at the base, shining, 2–3 inches long. Racemes axillary and lateral. Flowers numerous, pedicelled, white, fragrant. Upper lip of the calyx bifid, with the lobes indistinct; lower 3-teethed, with the middle tooth longer than the rest and subulate. Standard obcordate, at first patent, afterwards erect; wings oblong, denticulated at the base; keel  $\frac{1}{2}$  the length of the wings. Ovary pedicelled: style subulate: stigma obtuse. Legume oblong, subacuminate at both ends, glabrous, 1-celled, 2-valved, 1–3-seeded: seeds oblong, compressed.

The white fragrant flowers of this lowly tree, come out in great profusion after the rains in spring, and have been compared to those of the Hawthorn, which blossom about the same period of the year.

### XXXIII. Brya.

The flowers of *Amerimnum*, but the stamens are monadelphous, with the 10th concrete to the rest as far as the middle. Legume biarticulate, with the joints 1-seeded, dehiscent, compressed, with the upper suture straight, and the inferior convex; the upper joint sometimes awanting.—*De Cand.*

American trees, spiny with leaves simple, congested, subsessile.—*Name*, given by Browne, from *βῆρυς* to bloom, on account of the profusion of flowers which cover the branches.

#### 1. Brya Ebenus. *West-India Ebony.*

Spines distinct, leaves aggregate obovato-oblong, peduncles 2–3 axillary 1–2-flowered shorter than the leaf.—*De Cand.*

*Aspalathus arboreus* s. *pseudo-ebenus buxi folio*, flore luteo patulo, siliqua lata brevi chartacea, *Sloane*, II. 30. t. 175. f. 1. —*Brya arborescens*, *Browne*, 299. t. 31. f. 2.—*Amerimnum ebenus*, *Swartz, Prod.* 104.—*Brya ebenus*, *De Cand. Prod.* 421.

HAB. Common, especially in dry savannahs, on the South side of the Island.

FL. During the warmer months, after rains.

A shrub, or tree 15–20 feet in height, with erect fastigiate



branches ; branchlets angulose, armed with short sharp prickles, with clusters of leaves in their axils. Leaves small, very shortly petiolate, 3-4-5 crowded together, obovato-oblong, rounded and subemarginate with a minute deciduous awn at the apex, shining and glabrous above, puberulous beneath, deciduous in spring during dry weather. Flowers of a bright orange colour. Peduncles 2-3 together in the same cluster of leaflets, axillary, very short, each bearing 2 shortly pedicelled flowers, furnished with a pair of minute lanceolate pubescent bracteoles a little below the calyx. Calyx sub-bilabiate, 5-fid, with the divisions tooth-like, acute, ciliated, subequal with the exception of the lowest, which is somewhat longer and of a lanceolate shape ; externally pubescent, persistent. Standard clawed, obovato-rotund, subentire ; wings lineari-oblong ; keel cleft below, and slightly so at the apex, where also it is puberulous with minutely capitate hairs. Stamens submonadelphous (the tenth stamen being accrete to the rest for part of its length), with the sheath slit up above ; filaments of equal length : anthers minute, ovate. Ovary linear, compressed, sericeo-villous : style longer than the stamens : stigma simple. Legume pedicelled, not an inch in length, compresso-foliaceous, with the valves chartaceous, hirsute with minutely capitate hairs, biarticulate ; lower joint with the upper suture nearly straight, and the under convex ; upper joint small, abortive.

This is a very common tree in our savannahs and dry hills. When in blossom, with its long branches densely crowded with yellow flowers, it reminds the traveller of the broom of Europe. The wood is very hard and ponderous, and susceptible of a fine polish. In by-gone days the branches were favourite instruments of flagellation, and may be regarded as in that respect supplying, though in an aggravated degree, the place of the Birch of Europe.

#### Sub-Order II.—Tribe VII. *Swartzieæ*.

*Flowers not papilionaceous. Petals none, or 1-2.*

Of this Tribe there are none indigenous to this Island.

#### DIVISION II. *RECTEMEMBRIÆ*.

##### Tribe VIII. *Mimoseæ*.

*Sepals and petals valvate. Stamens hypogynous.*

#### XXXIV. *ENTADA*.

Flowers polygamous. Petals 5, distinct. Stamens

10–25, with anthers glandulose at the apex. Legume compressed, distinctly articulated, with the valves frequently on maturity separating into 2 membranes; joints 1-seeded; costæ persistent: seeds thick; cotyledons fleshy, unchanged during germination, and enclosed within the spermodermium under the ground.

—*De Cand.*

*Name*, from *εντατος* strung, from the joints of the legume being, as it were, strung together.

### 1. *Entada gigalobium*. *Cocoon*.

Leaves bipinnate terminating in a tendril, pinnæ 2-paired, leaflets 4–5-paired glabrous on both sides oblong emarginate, spikes supra-axillary, stamens 10.

*Phaseolus maximus perennis*, folio decomposito, lobo maximo contorto, *Sloane, Jam.* 68.—*Gigalobium*, *Browne*, 362.—*Mimosa scandens*, *Swartz, Obs.* 389.—*Acacia scandens*, *Willd.* IV. 1057.—*Entada gigalobium*, *De Cand.* II. 424.

HAB. Common in mountain woods.

FL. August.

Stem climbing to a great height, 100–150 feet in length: branches angulose, glabrous. Leaves bi-pinnate: pinnæ 2-paired: leaflets 4–5-paired, petiolulated, oblong, rounded and subemarginate at the apex, somewhat unequilateral at the base, delicately nerved and veined, glabrous, shining: common petiole subterete, slightly channelled above, terminating in a long bifid tendril: partial petioles articulated on the common. Stipules subulate, appressed. An open glandular pore or foramen a little below and on each side of the insertion of the petiole. Spike supra-axillary (with a row of tufted glandules between the axil of the leaf and the insertion of the spike), very long (longer than the leaf): rachis terete, occasionally terminating in a tendril: flowers numerous, small, very shortly pedicelled, each furnished at the insertion with a minute lanceolate bractea. Calyx minute, 5-dentate. Petals 5, oblong, small, green. Stamens 10 (according to *Swartz* 20–24), capillary, longer than the petals, twisted and hence apparently of the same length: anthers green, didymous, bearing a minute shortly pedicelled glandule. Pistil sometimes abortive, and its parts imperfectly developed: ovary lineari-oblong, glabrous: style protruding beyond the twisted stamens, capillary, green, twisted: stigma white, obtuse. Legume very large, 6–8 feet in length, 4 inches or more in breadth at the widest part, compressed, glabrous, of a brown colour, variously twisted, 2-valved, 10–12-seeded: seeds suborbiculate, compressed, 2 inches in breadth.

This is a very common climber in woods on the North

side of the Island. I am not aware that the seeds have been applied to any use, except to make a very indifferent kind of snuff-box. They are frequently to be met with along the sea-shore, being washed down during rains by the mountain streams. They are also sometimes carried out to sea, and falling into the Gulf-stream, are thrown on the northern coasts of Europe. Thus they have, as mentioned by Sir Hans Sloane in No. 222 of the Philosophical Transactions, been frequently picked up on the shores of the Hebrides and Orkneys.

### XXXV. MIMOSA.

Flowers polygamous. Petals 4-5, united into a 4-5-fid subinfundibuliform corolla. Stamens inserted on the bottom of the corolla or stipe of the ovary, equaling the divisions of the corolla in number or double or triple. Legume compresso-plane, 1- $\infty$ -jointed; joints 1-seeded; costæ persistent.—*De Cand.*

*Named*, from *μῦμος* a buffoon; the leaves as if playfully shrinking, when touched.

#### 1. *Mimosa viva*. *Lesser Sensitive-plant.*

Unarmed herbaceous, leaves conjugato-pinnated, pinnæ 4-paired, leaflets subrotund, legume of 1 joint.

*M. herbacea non spinosa minima repens*, *Sloane*, II. 58. t. 182. f. 7.—*M. minima herbacea vix tripollicaris capsulis monospermis hirsutis*, *Browne*, 254.—*M. viva*, *Willd. Sp. Pl.* IV. 1028.

**HAB.** Pastures of East Prospect Estate, St Thomas in the East.

**FL.** Throughout the year.

Stem herbaceous, diffuse, rooting, about 2 inches in height. Peduncles axillary, of the same length as the leaves, solitary, bearing a head of small flowers, in only one of which is the legume perfected.

This small plant grows in patches, densely covering the ground for several feet in extent. It is perhaps the most sensitive of its kind, its leaves affected even by the breeze, and instantly collapsing on being touched, so that you may write your name on a bed of it, by means of a stick drawn lightly over the surface, and the letters will remain legible for several minutes.

#### 2. *Mimosa pudica*. *Common Sensitive-plant.*

Stem herbaceous prickly hairy, leaves subdigitato-pinnated, pinnæ 4, leaflets multi-jugate linear.

*Willd. Sp. Pl.* IV. 1031.—*Bot. Rep.* 544.

HAB. Pastures, &c., common.

FL. Throughout the year.

Stem suffruticose, procumbent, coloured. Leaves sometimes conjugato-pinnated. Petioles and peduncles hairy. Calyx 3-4-fid. Corolla ○. Filaments 4, six times longer than the calyx, erect. Style somewhat shorter than the filaments. Legume with the disk glabrous, and the margin setose with stiff hairs.

This species is considered to have originally been indigenous to Brazil: it is, however, very common in every part of this Island, and found to be a very troublesome weed in pastures, from the prickles wounding the mouths of the stock, when they are feeding where it grows. The leaves, like those of the preceding species, are very sensitive.

### 3. *Mimosa asperata*. *Shrubby Sensitive-plant*.

Leaves bipinnate, pinnæ 8-12-jugate, leaflets multi-jugate with the under surface and margin appressose, prickles of the stem and between the pinnæ slightly hooked, those at the base of the pinnæ straight, peduncles subgeminate length of the head.

*M. frutescens spinosa et aculeata*, siliquis hirsutis, *Browne*, 253.—*M. asperata*, *Willd. Sp. Pl.* IV. 1035.—*De Cand. Leg.* 63.

HAB. In Gardens.

FL. Throughout the year.

A shrub, about 6 feet in height: branches hairy. Heads of flowers globose, of a pale pink colour. Legumes about 4 inches long, and  $\frac{1}{2}$  an inch broad, pilose, separating, when ripe, into joints, corresponding to the seeds in number.

*Browne* calls this the thorned sensitive from Panama, and states that it was introduced from the Continent. I have frequently met with it in gardens, but never growing wild. The leaflets are sensitive to the touch, but the petiole is not, as in the two preceding species, affected.

## XXXVI. INGA.

Flowers polygamous. Calyx 5-toothed. Petals 5, united into a 5-fid corolla. Stamens  $\infty$ , exserted, shortly (sometimes for the greater part of their length) monadelphous at the base. Legumes broad-linear, compressed, 1-celled: seeds covered with a pulp, or more rarely with farina or a pellicle.—*De Cand.*

Trees or shrubs, generally unarmed. Flowers spiked or capitate, red or white.—There is a very lofty tree of INGA



**BIGLOBOSA** in the Botanic Garden at Bath.—*Name*, of American origin, first adopted by Marcgraaf.

1. *Inga vera.*    *Common Inga.*

Petiole winged, leaflets 4-5-jugate obovato-oblong acuminate membranaceous glabrous, spikes axillary few-flowered, corolla lanato-sericeous, legumes sulcated.

Arbor siliquosa Brasiliensis, foliis pinnatis costa media membranulis extantibus, *Sloane*, II. 58. t. 183. f. 1.—*Inga* flore albo fimbriato, fructu dulci, *Plum. Gen.* 13. ic. 25.—*Mimosa Inga*, *Swartz, Obs.* 388.—*Inga vera*, *Willd. Sp. Pl.* IV. 1010.

**HAB.** Banks of Rivers. Common in the neighbourhood of Bath, St Thomas in the East.

**FL.** Spring.

A tree, 20-30 feet in height. Leaflets 3-4 inches in length, the upper ones the largest, parallelly veined, glabrous, shining above. A large sessile cup-shaped glandule between every pair of leaflets. Flowers spiked. Calyx 5-toothed. Corolla twice the length of the calyx. Stamens many, monadelphous, much longer than the corolla, capillary, white: anthers minute. Legume pubescent, with the seeds lodged in a white sweet edible pulp.

2. *Inga unguis-cati.*    *Four-leaved Inga.*

Spines stipulary straight, leaflets subrotundo-elliptic subdimidiate rounded at the apex glabrous, a glandule at the division of the petiole and also between the leaflets, racemes terminal, flowers sessile crowded, legumes twisted.

*Acacia arborea major spinosa*, pinnis quatuor, siliquis varie intortis, *Sloane*, II. 56.—*Mimosa fruticosa*, foliis ovatis binatobinatis, seminibus atro-nitentibus, *Browne*, 252.—*M. unguis-cati*, *Swartz, Obs.* 389.—*Inga*, *Willd.* IV. 1006.

**HAB.** Common, in the fences and thickets, in the neighbourhood of Spanish-Town.

**FL.** End of the year.

A shrubby tree, about 10 feet in height: branches terete, ash-coloured, sometimes unarmed; branchlets flexuose, glabrous. Thorns stipulary, short, straight. Leaves bipinnate: leaflets 1-paired sessile, very obtuse or subemarginate at the apex, nervose, glabrous: petiole subalate, channelled above. A minute glandule at the extremity of the common, and another at that of the partial petioles. Racemes terminal, of 2-3 simple branches. Peduncle angulose, minutely puberulous. Flowers greenish yellow, sessile, furnished at the insertion with a



minute ovate bracteole. Calyx small, 5-dentate, with the teeth rather indistinct. Corolla more than twice the length of the calyx, 5-fid, with the teeth acute. Filaments capillary, yellow, matted, three times the length of the corolla. Legumes torulose, twisted in a spiral manner, of a red colour: seeds 5-6, black, shining, roundish, compressed, half-buried in a snow-white fleshy arillus-like pellicle.

The specific designation, *unguis-cati*, is given from the curved form of the thorns with which the tree is armed. Browne calls it the *black-bead* shrub; and from others it receives the names of *Barbary-thorn* and *Nephritic-tree*. Barham tells us, that it is a sovereign remedy for stone, gravel, and other urinary complaints, and also for obstruction of the liver and spleen. We are informed that it was first planted in the Island by a Spanish Bishop, who, in expatiating on the virtues of the plant, deduced that it must be useful in nephritic complaints, from the shape of the seeds resembling that of the kidney, and the white arillus corresponding to the fat in which the gland is imbedded. The bark is the part that is made use of, and Barham states, that in his time it was in such general use, that it was rare to meet with a tree that had not been barked. The decoction is of a red colour, is very astringent, and has the reputation of acting as a diuretic. It has been employed externally as a lotion and injection in cases of relaxation of the parts. It is supposed that this plant was introduced by the Spaniards, as it is confined to the neighbourhood of Spanish-Town, and has not been met with in any other part of the Island.

### 3. \* *Inga comosa*. *Long-stamened Inga*.

Pinnæ 3-jugate, leaflets 9-10-jugate ovate retuse at the base, petioles branches and the paniculato-corymbose flowers glabrous, legumes acinaciform.

*Mimosa comosa*, Swartz, *Fl. Ind. Occ.* 980.

HAB. Rocks, North side of the Island, Swartz.

A shrubby tree, 15-20 feet in height. Leaves generally in pairs from a single bud: leaflets very glabrous, veined. A small ciliated cavity in place of a glandule at the base of the petiolules. Panicle terminal. Calyx and corolla 3-5-fid. Legume about 2 inches in length, margined, glabrous: seeds 6-8. Swartz.

### 4. *Inga Saman*. *South American Acacia*.

Pinnæ 4-6-jugate, leaflets 2-6-jugate oblong obtuse glabrous above pubescent beneath, a glandule between each pair of pinnæ and leaflets, peduncles terminal and axillary, legume about 20-seeded.

*Mimosa Saman*, *Jacq. Frag. Bot.* 5. t. 9.—*Inga Saman*, *Willd.* IV. 1024.

HAB. Common in Salt-ponds, St Catherine's.

FL. April—October.

A spreading tree, 40–50 feet in height: branches at their extremities angulose, velutino-pubescent. Leaves alternate, bipinnate: pinnæ 4–5-paired: leaflets of the terminal pinnæ 6-paired, diminishing gradually, so that those of the lowest pinnæ are only 2-paired; the outermost pair of leaflets the largest; subsessile, rhomboideo-oblong, unequilateral, bluntly apiculated, glabrous and shining above, incano-velutino-pubescent beneath: common petiole anguloso-sulcated, pubescent, with a roundish sessile depressed urceolate glandule between each pair of pinnæ: partial petioles subterete, with a sharp ridge above, pubescent, bearing a small glandule between each pair of leaflets. Stipules thickish, lanceolate, attenuated at the apex, blunt, deciduous. Peduncles terminal, and in the axillæ of the subterminal leaves, 4–8 together, 3–5 inches in length, subterete, anguloso-sulcated, pubescent, each bearing a head of about 20 flowers. Flowers crimson, subsessile, each furnished with a spatulate bractea, hooded near the apex, deciduous. Calyx tubulose, infundibuliform, 5-fid, externally greenish and tomentulose; divisions blunt. Corolla less than twice the length of the calyx, 5-fid, tubulose, slit on one side, externally yellowish, tomentulose; divisions blunt. Stamens  $\infty$ , more than twice the length of the floral coverings, delicately capillary, monadelphous at the base, tinged towards the apex with crimson: anthers very small. Ovary linear, greenish, glabrous: style longer than the stamens, tinged with crimson: stigma simple. Legume about 9 inches in length, linear, compressed, of brownish-black colour, corrugated, shining; sutures thickened: seeds each inclosed in a pellicle, imbedded in a sweet amber-coloured gummy pulp, about 20 in number, oblong, compressed, of a brownish colour.

This is among the loftiest and most beautiful of its tribe. It is originally a native of the Caraccas, but is now one of the most common trees in Salt-ponds, the seeds having been brought over by the Spanish cattle, which were formerly imported in great numbers from the different parts of South America. Horses, cattle, sheep, and indeed every description of stock feed readily on the pods, and are usually collected under the trees, on a windy day, waiting till they fall to the ground. The tree itself affords a beautiful shade, and grows up very rapidly. The wood is said to be very ornamental.

##### 5. *Inga cyclocarpa*. *Shell-podded Inga*.

Pinnæ 5–9-paired, leaflets 20–30-paired oblong obtuse subdimidiate puberulous, a glandule below the lowest and another between the 1–2 extreme pairs of

pinnae, spikes globose axillary peduncled, legumes shell-shaped.

*Mimosa cyclocarpa*, Jacq. *Frag.* t. 34. f. 1.—*Inga*, Willd. *Spec.* IV. 1026.

HAB. Near the Spanish-Town Bridge.

FL. March.

A tree, 30–40 feet in height; branches erect. Pinnæ usually 5–7-paired, and the leaflets 24-paired. Peduncles axillary, 4–5 together, about 2 inches in length, terete, minutely puberulous, bearing a number of greenish yellow sessile flowers in a head. Calyx 5-fid, with the teeth obscure, minutely puberulous. Corolla twice the length of the calyx, 5-fid, with the divisions linear, obtuse. Filaments numerous, more than twice the length of the corolla, monadelphous at the base. Legume shell-shaped, large, about 2 inches in breadth, tumid at the situation of the seeds; pulp saponaceous: seeds 10–14, oblong, compressed, of a chesnut colour with an oblong black spot on each side.

The pulp contained in the pods of this species is employed in the Caraccas as a substitute for soap in washing clothes.

### 5. *Inga fragrans.* *Sweet-smelling Inga.*

Pinnæ 10-paired, leaflets 40-paired lineari-oblong obtuse unequilateral at the base glabrous, common petiole with an oblong glandule  $\frac{1}{2}$  an inch from the insertion, and a round one between the terminal pair of pinnae, panicles terminal leafy, flowers subsessile 12–20 in a head.

HAB. Port-Royal mountains. Below Moccha and Chesterfield works.

FL. August.

A tree, 20–30 feet in height, with spreading branches. Leaves alternate, bipinnate: pinnae  $3\frac{1}{2}$  inches in length, 10-paired: leaflets 39-paired, sub-petiolulated, lineari-oblong, obtuse, unequilateral at the base, deep green glabrous and shining above, paler and minutely ciliated and puberulous along the mid-nerve beneath, about 4 lines in length: common petiole about 8 inches in length, channelled above, with an oblong glandule  $\frac{1}{2}$  an inch from the insertion, and a roundish glandule between the terminal pair of pinnae. Peduncles axillary and terminal, forming together a leafy panicle, angulose: branches of the peduncles short ( $\frac{1}{3}$  d of an inch in length), each bearing 12–20 white fragrant subsessile flowers in a head. Calyx minutely 5-dentate. Corolla infundibuliform, 5-fid, greenish: divisions oblongo-ovate, subacute. Stamens 20, more than

twice the length of the corolla, slightly accrete for half their length at the base: anthers minute, yellow. Ovary small, oblong, green: style length of the stamens: stigma obtuse. Legume about 3 inches in length, linear, plano-compressed, velvety, about 10-seeded: seeds covered with a pellicle, orbiculate, compressed, yellowish.

### XXXVII. Desmanthus.

Flowers polygamous. Calyx 5-toothed. Petals 5, distinct, oblongo-spathulate, or united, or in the neuter flowers none. Stamens 10, rarely 5, with the filaments in the lower flowers sterile, dilatato-membranaceous or filiform. Legume continuous, juiceless, 2-valved.—*De Cand.*

Herbaceous or fruticose; leaves bipinnate; leaflets linear; spikes axillary, ovate or cylindrical; flowers white. *Name*, from δεσμος *a bond*, and ανθος *a flower*; on account of the fascicles of flowers being as it were bound together.

#### 1. Desmanthus strictus. *Erect Desmanthus.*

Suffruticose erect, pinnæ 4–5-paired with a glandule between the lowest pair, peduncles naked, flowers capitate bracteolated decandrous, legume narrow-linear 20–25-seeded.

*Mimosa frutescens* siliquis compressis falcatis umbellatis, pedunculo longissimo, *Browne*, 253.—*Desmanthus strictus*, *De Cand. Prod.* II. 445.

HAB. Roadside near Castle Perkins, Liguanea.

FL. May.

A shrub, 2–3 feet in height: branches angulose, striated, glabrous. Leaves alternate, bipinnate; pinnæ 3–5-paired; leaflets 25-paired, linear, acute, ciliated: petiole 3-gonal, bearing an orbiculate excavated cup-shaped glandule between the lowest pair of pinnæ. Stipules setaceous. Peduncle axillary, solitary, shorter than the leaf, bearing 6–8 flowers in a head. Flowers small, white, sessile, furnished with a minute ovate acuminate scariose ciliated bracteole. Calyx 5-fid: teeth subulate, erect. Petals 5, about twice the length of the calyx, linear, acute, greenish. Stamens 10, longer than the petals, delicately capillary, matted. Ovary oblong, compressed, glabrous: style interlaced with the stamens, and of the same length: stigma capitate, excavated at the extremity. Legumes 2–3 inches in length, and 2–3 lines in breadth, linear, about 25-seeded: seeds oval, compressed.



2. *Desmanthus pratorum*. *Field Desmanthus*.

Stem suffruticose prostrate, pinnæ 2-4-paired, petiole 1-glandulose between the lowest pair of pinnæ, spikes capitate 8-flowered, stamens 10, legumes narrow linear.

HAB. Oxford pastures, St Thomas in the East. Hope pastures, Liguanea. Lucky Valley, Port-Royal.

FL. After rains.

Stem frutescent, prostrate, branched: branches long, simple, subtetragonal, scabrous under the microscope. Leaves bipinnate: pinnæ 2-4 paired: leaflets minute, 18-paired, lineari-oblong, obtuse, under the glass minutely ciliated: petiole  $1\frac{1}{2}$  inch long, channelled, with the upper surface puberulous, bearing a red sessile cup-like glandule between the lowest pair of pinnæ. Stipules setaceous. Peduncle axillary, longer than the petiole, filiform, jointed, and furnished with a pair of minute ovate attenuated bracteas towards the extremity, bearing a head of 8 small white flowers. A minute ovate acuminate bracteole to each of the flowers. Calyx 5-fid. Petals twice the length of the calyx, lineari-oblong. Filaments twice the length of the petals, white. Legumes 2-6 perfected in the head, linear, acute, mucronate: seeds about 14, elliptic.

## XXXVIII. PROSOPIS.

Flowers polygamous. Calyx 5-dentate. Petals 5, free. Stamens 10; filaments slightly connate at the base. Legume continuous, filled with pulp, linear, somewhat compressed, torulose at the situations of the seeds, and at length subsoluble betwixt them.

Trees or shrubs, prickly or unarmed; leaves bipinnate; spikes axillary, peduncled; flowers greenish or yellowish; legumes edulous.—*Name*, from *προσωπίς*, a little mask?

1. *Prosopis juliflora*. *Cashaw*.

Spines stipulary straight, pinnæ 1-2-paired, leaflets 18-20 linear subacute glabrous, a sessile glandule between each pair of pinnæ, spikes cylindrical, legume compressed glabrous.

*Mimosa juliflora*, Swartz, *Prod.* 85.—*M. piliflora*, *Fl. Ind. Occ.* 986.—*Prosopis*, *De Cand. Prod.* II. 447.

HAB. Common.

FL. Throughout the year, during dry weather.

A tree, attaining 30-40 feet in height, with the stem thick, crooked, rimose: branches long, subvirgate, diffuse, terete, ash-coloured, glabrous, armed with short straight stipulary spines.



Pinnæ 1-2-paired: leaflets 18-20-paired, linear, subacute, glabrous, but very minutely to the glass, especially at the base, ciliated: petiole terminating in a subulate seta, and bearing a sessile glandule between every pair of pinnæ. Spikes axillary, 3-4 together, furnished at the base with numerous setaceous bracteas, cylindrical, about 2-3 inches in length: peduncle terete puberulous, free for about 3 lines at the base, and furnished there with about 3 subulate bracteas. Flowers subsessile, numerous, crowded, yellowish, delicately fragrant. Petals nearly 3 times the length of the calyx, linear-oblong, villous internally towards the apex. Stamens somewhat longer than the petals, apparently free to the base, glabrous: anthers subquadrate. Ovary linear, niveo-villous: style short: stigma obtuse. Legume only one (rarely more) in each spike coming to perfection, linear compressed, glabrous, of an ochre colour: pulp, to the taste, sweetish: seeds numerous, obovate, compressed, of a clay colour.

This tree thrives best in a dry district, and hence acquires its greatest perfection in the Salt-ponds district, and in the plain of Liguanea, towards the sea. The stem may frequently be met with 3 feet in diameter, attaining a great height, and affording a grateful shelter from the noon-day sun. It is said to have been introduced into the country; but this can scarcely be credited, as it remains to be discovered from what country it came. It is a very hardy tree, sending up rapidly a number of shoots whenever it has been cut down, so that it can only be eradicated from a pasture by burning the roots. It disseminates itself by means of the cattle which feed on the pods; it is to be met with in all our plains and lower hills; and, in certain districts, it covers extensive plains.

A transparent gum, having the appearance, and possessing all the properties of gum arabic, may be obtained in considerable quantities by wounding the stem and large branches. It was probably from this circumstance that the tree was in former times mistaken for the *Acacia vera*, and supposed to yield the gum arabic of the shops. As all parts of the tree abound with this gummy juice, stock of every kind feed readily on the pods, young shoots, and leaves. They may do this with impunity during dry weather, and the pods are even said to be as nutritious as corn. After rains, however, the latter are very pernicious, and frequent instances yearly occur of horses dying from having fed upon them. It would appear, that the fatal effects are produced by the seeds germinating in the stomach of the animal; for the process is found, on opening the body, to have made some progress. In dry weather the seeds are hard, whereas after rains they are softened and prepared to spring. It is probable that it is the carbonic acid which is given out during germination that induces the inflammation of the stomach and bowels, which is always present in such

cases. It has been remarked, that horses that have been hard-worked, and then turned out into pasture, are the most apt to suffer in this manner; whereas the occurrence scarcely ever takes place among breeding stock. The remedies usually employed are saline purgatives to carry off the noxious matter; and alkaline and earthy solutions to absorb the carbonic acid, as soon as it is generated.

As a timber, the wood is very hard. It is not, however, adapted to saw into planks or boards, from the stem being very much twisted and crooked. It is sometimes split into shingles, which are very durable; but the holes for the nails require to be bored. The principal use of the wood is for fuel, being the best adapted for that purpose of any that is made use of; and, from its being of rapid growth, a constant supply can be obtained.

Browne has erroneously called this the *Poponax*, and in this he has been followed by Lunan.

### XXXIX. ACACIA.

Flowers polygamous. Calyx 4-5-toothed. Petals 4-5, either free, or united into a 4-5-fid corolla. Stamens varying in number from 10 to 200. Legume continuous, juiceless, bivalved.

Shrubs or trees; flowers yellow, white, or more rarely red, capitate or spiked, with the stamens monadelphous or free.—*Name*, the Greek designation of one of the species.

\* *Leaves bipinnate; pinnae 1-paired.*

1. \* *Acacia pilosa.* *Hairy Acacia.*

Spines subaxillary patulous straight, stipules lanceolate striated erect, leaflets 13-jugate linear obtuse, petiole very short eglandulose and, as also the branches, pilose.—*De Cand.*

*Bertero, De Cand. Prod. II. 455.*

HAB. and FL.—?

2. \* *Acacia salinarum.* *Sea-side Acacia.*

Spines solitary straight at the sides of the bud, leaflets of each pinna 12-20-jugate linear obtuse, and, as also the branches and corolla, glabrous, a glandule at the apex of the petiole and between the leaflets, spikes solitary peduncled.—*De Cand.*

*Mimosa salinarum, Vahl. Ecl. III. 35.*

HAB. Salinas.

FL. — ?

The stamens 10. Ovary hirsute.

\* \* *Leaves bipinnate, pinnæ multijugate, flowers spiked.*

3. \* *Acacia lophanthoides. Mountain Acacia.*

Unarmed, pinnæ 6-jugate leaflets 16-jugate ovali-oblong obtuse, petioles eglandulose pubescent as also the branches, racemes subgeminat axillary short, calyx very glabrous.

*Bertero, De Cand. Prod. II. 457.*

HAB. and FL. — ?

4. *Acacia Catechu. Medicinal Acacia.*

Spines stipulary, when young straight, afterwards hooked, pinnæ 10–17-paired, leaflets 50–60 linear ciliated, a depressed glandule at the base of the petiole, and one between the extreme 2, 3, or 4 pairs of pinnæ, spikes cylindrical 1–3-axillary.

*Mimosa Catechu, Rox. Cor. II. 175.—A. Catechu, Willd. Spec. IV. 1079.—De Cand. Prod. II. 458.*

HAB. Common. Liguanea. St Thomas in the East.

FL. June.

A tree, 15–20 feet in height: branches spreading, armed with strong black stipulary spines, puberulous towards their extremities. Leaves bipinnate: pinnæ 10–17-paired: leaflets 50–60-paired, shortly petiolulated, linear, bluntish, unequal and auriculated on the lower side at the base, ciliated: petiole angular, channelled above, puberulous, bearing an orbiculate urceolate green glandule below the lowest pair, and similar but much smaller ones between each of the two, three, or four terminal pairs of pinnæ. Spines stipulary, strong, black, sharp. Spikes axillary, 1–2 together, cylindrical, at first much shorter than the leaf, but afterwards elongating: peduncles puberulous. Flowers numerous, white, sessile. Calyx externally puberulous, 5-fid; teeth erect. Corolla rather longer than the calyx, 5-fid, glabrous; divisions ovate, acuminate, obtuse. Stamens twice the length of the corolla, very numerous, delicately capillary, distinct from the base. Ovary green, glabrous, shortly stipitate: style capillary length of the stamens. Legumes linear, attenuated at the base, acuminate at the apex, plane, glabrous, about 6-seeded or fewer by abortion: seeds orbiculate, flattened.

This tree appears to have been introduced into the Island many years since. In some districts it has been planted to form fences, and has received incorrectly the name of the *Jerusalem Thorn*. The extract, called Catechu, is obtained by boiling the inner part of the stem, and afterwards evaporating. It is of a reddish brown colour, possesses a degree of brilliancy and friability, and to the taste is sweetish, followed by a considerable degree of astringency. According to Sir Humphry Davy, it consists of about one-half its weight of tannin, and about one-third of a peculiar extract, combined with a portion of mucilage and some extraneous substances. It is a valuable astringent, and may be employed to restrain immoderate discharges in all cases unattended with inflammatory action. It is given in diarrhœa and leucorrhœa, and, combined with the balsam of copaiba, in the chronic stage of gonorrhœa. It forms an excellent tooth-powder, strengthening the gums, and rectifying the breath when it is disagreeable.

\* \* \* *Leaves bipinnate ; flowers collected into a globose head.*

#### 5. *Acacia tortuosa*. *Poponax*.

Spines in pairs connate, branches and petioles pubescent, pinnae 2-6-jugate, leaflets 12-16-jugate, a glandule beneath the lowest pair and frequently between the extreme pairs of leaflets, heads of flowers solitary axillary, legumes terete curved like a horn pubescent.

*Acacia Americana* siliqua ventricosa, *Sloane*, II. 56.—*Mimosa tortuosa*, *Browne*, 251.—*Swartz*, *Obs.* 391.

HAB. Common, especially in the dry plains on the South side of the Island.

FL. After the rains in May.

A shrubby tree, seldom more than 10 feet in height: branches diffuse, spreading. Spines stipulary, about  $\frac{1}{2}$  an inch in length. Leaves 3-4 arising together. Heads of flowers yellow, of a heavy smell. Calyx and corolla 5-toothed. Stamens 20-24, monadelphous at the base. Legumen corniculated, roundish, torulose, attenuated at both ends, black: seeds ovate, compressed, black, lodged in a viscid pulp.

This is an unsightly tree, of very little use except as fuel. All parts of the plant are astringent.

#### 6. *Acacia parvifolia*. *Small-leaved Acacia*.

Spines stipulary, branchlets towards their extremities puberulous, petioles pubescent, pinnae 5-6-jugate.



gate leaflets 20–25-paired linear very small, a glandule below the lowest, and one between each of the extreme pairs of pinnæ, heads of flowers peduncled solitary.

*Mimosa mangensis*, *Jacq. Am.* 267.—*M. parvifolia*, *Swartz, Fl. Ind. Occ.* 984.—*Acacia parviflora*, *De Cand. Prod.* II. 462.

HAB. Near Quarrel's Pen, Kingston, Liguanea.

FL. June and November.

A lowly tree, about 8 feet in height : branches horizontally spreading, flexuose, terete, puberulous towards their extremities. Spines in pairs, at the divisions of the branches, unequal in length, straight. Leaves bipinnate : pinnæ 6-paired : leaflets 21-paired, lineari-oblong, subacute, nerved, ciliated and minutely puberulous beneath, about 3 lines in length : common petiole puberulous, bearing a small pedicelled glandule below the lowest pair of pinnæ, and one between each of the extreme pairs. Stipules an inch in length, linear, membranaceous, deciduous. Peduncle solitary, opposite to a leaf, an inch in length, bearing 15–20 pale greenish slightly fragrant flowers in a head. Calyx tubular, 5-fid. Corolla twice the length of the calyx, 5-fid ; divisions erect. Stamens more than twice the length of the corolla, monadelphous at the base. Ovary glabrous : style length of the stamens. Legume compressed, glabrous, arcuate : seeds several, oval.

The flowers appear to be polygamous, as only certain trees bear fruit. The blossoms show after the May, as well as the October rains ; but it is only after the latter that I have observed the pods to form.

### 7. *Acacia microcephala*. *Small-headed Acacia*.

Spines stipulary, pinnæ 12–16-paired, leaflets 25–30-paired, an orbiculate depressed glandule beneath the lowest pair, and one between the 2–3 terminal pairs of pinnæ, heads of flowers in threes axillary.

HAB. At a bridge beyond the second milestone on the Windward road.

FL. August, September.

A shrubby tree, about 12 feet in height, with spreading branches : branchlets subflexuose, terete, scabrous, glabrous. Leaves alternate, bipinnate : pinnæ 13–16-paired : leaflets 30-paired, linear, obtuse, entire, sub-glabrous, 2–3 lines in length : common petiole triquetrous, and, as also the partial, minutely puberulous, furnished with an orbiculate excavated cup-shaped glandule below the lowest pair of pinnæ, and with one between each of the 2–3 terminal pairs. Prickles in pairs, stipulary,



short. Heads of flowers axillary, peduncled, usually three together, small, not half the size of those of *A. TORTUOSA*. Peduncles about an inch in length. Calyx minute, thin, membranaceous, 4-5-dentate. Petals 4-5, united into a 4-5-cleft corolla; divisions somewhat longer than the calyx. Stamens numerous, yellow about  $\frac{1}{3}$  longer than the corolla: ovary compressed, minutely puberulous: style length of the stamens, rather thick: stigma obtuse. Legume 3-4 inches in length, spongy, roundish, compressed, incano-villous.

8. \* *Acacia macracanthoides*. *Large-flowered Acacia*.

Spines in pairs terete, branches, petioles, and peduncles pubescent, pinnæ 12-14-jugate, leaflets 25-jugate oblongo-linear glabrous, a glandule beneath the lowest, and between the terminal pairs of pinnæ, heads in pairs axillary on long peduncles.

*Bertero, De Cand. Prod.* II. 463.

HAB. — ?

FL. — ?

9. *Acacia subinermis*. *Short-spined Acacia*.

Spines in pairs subulate short, branchlets, petioles, and peduncles pubescent, pinnæ 20-40-paired, leaflets 20-40-paired linear oblong glabrous, a glandule beneath the lowest, and one between the 2-5 terminal pairs of pinnæ, heads of flowers 2-3 together peduncled axillary.

*Bertero, De Cand. Prod.* II. 463.

HAB. Salt Ponds district, St Catherine's.

FL. March.

A tree, attaining 20-30 feet in height: branches spreading, terete, papillose, villous towards their extremities. Spines in the younger plants distinct; in the old, small, stipulary, subulate, about 2 lines in length. Leaflets very small, glabrous, about 2 lines in length: common petiole villous, bearing a subglobose depressed glandule beneath the lowest pair of pinnæ, and one between each of the 2-5 terminal pairs. Peduncles short, usually 2 together. Flowers numerous, small, crowded into a head, yellow. Calyx obscurely 5-toothed. Corolla somewhat longer, 5-fid. Stamens  $\infty$ , longer than the corolla. Legume linear, roundish, compressed, torulose, villous, ash-coloured, 12-seeded: seeds roundish, compressed, of a chesnut colour.

This tree is very common between Spanish-Town, and the Ferry.

10. *Acacia Lebbek. Egyptian Acacia.*

Unarmed, pinnæ 2-4-jugate, leaflets 6-8-jugate oval subdimidiate obtuse at both ends, petioles eglandulose, heads peduncled aggregated, flowers pedicelled.—*De Cand.*

*Willd. Sp. Pl.* IV. 1066.

HAB. Cultivated.

FL. After the rains in May.

This species, originally a native of Upper Egypt, is very generally cultivated for ornamental purposes. The pods are broad-linear, plane, a span in length, smooth, attenuated at both ends, 7-8-seeded.

11. *Acacia latisilqua. Broad-podded Acacia.*

Unarmed glabrous, pinnæ 5-jugate, leaflets 10-paired elliptic obtuse, stipules dimidiato-cordate, heads of flowers peduncled aggregate arranged to form a terminal panicle.—*De Cand.*

*Willd. Sp. Pl.* IV. 1067.

HAB. Commonly cultivated in Towns.

FL. After the May and August rains.

There is an obsolete glandule beneath the lowest pair of pinnæ. Legumes oblong, plane, acute at both ends, on a long stipe.

12. *Acacia vespertina. Night-flowering Acacia.*

Unarmed, pinnæ 2-4-jugate, leaflets 20-25-jugate lineari-oblong bluntish unequal at the base, peduncles axillary 3 together each bearing a head of about 15 flowers, stamens very long.

HAB. Common in Port-Royal and St Andrew's mountains.

FL. The warmer months, from April to September.

A shrubby tree, 10 feet or more in height: branches irregular, wrinkled, ash-coloured. Leaves bipinnate; pinnæ 2-4-jugate; leaflets 20-25-paired, sessile, lineari-oblong, bluntish, unequal at the base, glabrous, (when young ciliated under the glass), eglandulose: common petioles about 4 inches in length, triquetrous, lineated, pubescent: partial petioles trigonal, pubescent. Stipules subulato-lanceolate, puberulous, deciduous. Peduncles axillary, elongated, longer than the petioles, usually 3 together, compressed, lineated, puberulous, each bearing a head of flowers. Flowers about 15 in the head, sessile, white. Calyx

small, 5-fid; divisions acute, not ciliated. Corolla thrice the length of the calyx; divisions oblong, subacute. Stamens very numerous, monadelphous for a short distance at the base, an inch in length, capillary, white: anthers roundish. Ovary oblong, greenish, smooth: style length of the stamens. Legume linear, compressed, with the edges incrassated, 9-10-seeded, tumid at the situation of the seeds, about  $2\frac{1}{2}$  inches long: valves dry, when the pod is ripe revolute from the apex to the base: seeds oblongo-oval, compressed.

This plant has been confounded with *MIMOSA COMOSA* of Swartz. It is very different, however, from that plant. I have given the specific designation of *Vespertina* to this species, from the circumstance that the flowers are at evening in their greatest perfection. Their long white filaments, which, during the heat of the day, hung down and were matted like tresses of hair, become erect, giving a singular starry appearance to the plant, and a slight but grateful fragrance is diffused.

### 13. *Acacia villosa*. *Villous Acacia*.

Unarmed villous, pinnæ 6-paired, leaflets 10-16-paired oblong or ovate pubescent, petioles eglandulose, heads of flowers peduncled in threes axillary arranged to form a subterminal panicle.

*Mimosa villosa*, Swartz, *Fl. Ind. Occ.* 982.—*Acacia villosa*, Willd. IV. 1067.—*De Cand. Prod.* II. 468.

HAB. Common, low hills on the South side of the Island.

FL. Throughout the year.

A shrubby tree, 6-8 feet in height; branches sub-terete, of a brown colour, anguloso-striated, villous (approaching to hirsute.) Pinnæ 6- (rarely 5- or 7-) paired, about 3 inches long: leaflets 10-15-paired, scarcely petiolulated, oblong (the inner ones the smallest and of an ovate shape), somewhat unequilateral at the base, subacute, pubescent: common petiole sub-3-gonal slightly channelled above, villous, eglandulose; partial petioles sub-3-gonal, villous, with a pair of minute ovate scale-like stipels near their base. Stipules lanceolate, keeled on the back, villous, ciliated, deciduous. Peduncle subterete, villous, 3 together in the axillæ of the subterminal leaves, (forming at the end of the branches a kind of panicle), each bearing a somewhat oblong head of about 15 white shortly pedicelled flowers. A small oblong solitary deciduous bractea situated on one side of the peduncle a little below the head. Calyx urceolate, minutely 5-toothed. Petals 5, united to form a 5-partite corolla: divisions lineari-oblong, subacute, 3 times longer than the calyx. Stamens very numerous, 3 times the length of the corolla, delicately capillary: anthers minute, yellow. Ovary stipitate, linear, compressed, glabrous: style rather thicker than the filaments. Legume short, plane, hairy.

14. *Acacia trichophylloides*. *Delicately-leaved Acacia*.

Unarmed, pinnæ 12-paired, leaflets 35–40-paired dimidiato-oblongo-linear acute ciliated, a glandule beneath the lowest and the terminal pair of pinnæ, peduncles 4 together axillary.

*Mimosa angustifolia*, *Lam. Dict.* I. 12?—*Acacia angustiloba*, *De Cand. Prod.* II. 470.

HAB. Common, Port-Royal mountains.

FL. May, June.

A tree, varying from 10 to 40 feet in height: branches spreading, towards their extremities angulose, of a rufous purple colour, velutino-pubescent. Leaves bipinnate, about 6 inches in length: pinnæ usually 12-paired, about 2 inches in length: leaflets about 35-paired, very small, scarcely one-fourth of an inch in length, subsessile, linear, subfalcate, dimidiato-oblong, unequilateral and subcordate on one side at the base, acute, ciliated: common petiole tetragonal with the lowest side the broadest, puberulous, bearing a rather large orbiculate depressed glandule beneath the lowest and another beneath the terminal pair of pinnæ: partial petioles (of the pinnæ) subtetragonal, puberulous. Stipules scarcely any. Peduncles axillary, 4 together, divaricating, about an inch in length, sub-3-gonal, puberulous, coloured on two of the sides, and obscurely sulcated on the other, each bearing a dense head of about 50 sessile white flowers. Calyx 5-toothed. Petals 5, much longer than the calyx, oblong, subacute, externally puberulous. Stamens 10, more than twice the length of the petals: filaments white, erecto-patent; anthers oblong, pale yellow. Ovary oblong, compressed, albido-villous with appressed hairs: style somewhat longer and thicker than the stamens: stigma obtuse. Legume 3–4 inches in length, linear, with the margin (from some of the seeds being abortive) subsinuated, shortly stipitate, uncinato-apiculated with a persistent portion of the style, membranaceous, glabrous, 9–14-seeded.

This tree is commonly called the *Bastard Tamarind*. Its stem never attains any great size, so as to render it deserving of the name of a timber-tree.

15. *Acacia arborea*. *Wild Tamarind*.

Unarmed, the very young branchlets and petioles ferrugineo-velutine, pinnæ 12–16-jugate, leaflets 20–30-jugate oblongo-dimidiate glabrous, a depressed glandule between each pair of pinnæ, capitules of flowers 2–3 axillary peduncled.



*Acacia arborea maxima*, non spinosa, pinnis majoribus, flore albo, siliqua contorta coccinea ventricosa elegantissima, *Sloane*, II. t. 182. f. 1, 2.—*Mimosa arborea*, *Browne*, 252.—*Swartz*, *Obs.* 390.—*Acacia arborea*, *Willd. Spec. Pl.* IV. 1064.

HAB. Common in the mountains.

FL. July.

A lofty tree with spreading branches: branchlets brownish, rimulose, striated. Leaves 9–12 inches long: pinnæ 12–16-paired, 5–6 inches long: leaflets 20–30-paired, shortly petioluled, ovali-oblong, unequal at the base, bluntish: common petiole roundish, angulose, ferrugineo-velutine, with a roundish depressed green glandule between each pair of pinnæ: partial petioles terete, ferrugineo-velutine: petiolules very short, green, incrassated. Heads of flowers axillary, two together, peduncled: peduncles at right angles from each other, 2 inches in length, terete, ferrugineo-velutine: flowers whitish flesh-coloured, numerous. Calyx tubulose, 5-dentate, coloured, pubescent at the mouth. Corolla more than twice the length of the calyx, 5-fid. Filaments numerous, delicately capillary, matted: anthers minute, yellow. Legume roundish, contorted, scarlet, 4–5 inches in length; valves coriaceous, internally blood-coloured: seeds spherical, black, shining.

This is a valuable timber-tree, well adapted for flooring.

I may here mention that *A. BANCROFTIANA* of Bertero has proved to be *CÆSALPINIA BIJUGA*.

\* \* \* *Petals imbricated; stamens perigynous.*

### Tribe IX. *Geoffrææ*.

*Filaments variously connected.*

### XL. ARACHIS.

Calyx long, tubulose, pedicelliform, with the limb 2-lipped. Corolla resupinate. Stamens inserted with the petals in the throat of the calyx, 9 of them connected and fertile, the 10th free and sterile. Ovary stipitate; the stipe shortly after the opening of the flower elongated. Legume ovato-oblong, obtuse at both ends, gibbous, torulose, venoso-reticulated, coriaceous, indehiscent, 2–4-seeded: seeds thick, oily within; embryo straight; radicle short, obtuse; cotyledons semiellipsoid.—*De Cand.*

*Name*, derived from *Aracos* or *Aracidna*, a plant which, according to Pliny, had neither stem nor leaves, but was all root.



1. *Arachis hypogæa*. *American Earth-nuts*.

Sloane, I. 184.—Browne, 295.—Barham, 145.—Long, 788.  
—Lunan, I. 348.

HAB. Cultivated.

FL. May—November.

Branches diffused, procumbent, hairy, compressed. Leaves abruptly pinnated, bijugate; leaflets elliptic, apiculate, ciliated, otherwise glabrous. Stipules semiamplexicaul, an inch in length, striated, lanceolate, adnate to the petiole for one-third of an inch. Flowers axillary, 5–7 together, yellow, those situated high on the branches sterile, those which are near the root fertile. As the ovary enlarges and the pod begins to form, it forces itself into the earth (the flower-stalk at the same time elongating) and there ripens its seeds. Hence the common name of *Earth nuts*, and the specific designation *hypogæa* (ὕπο γῆ below ground). You require to dig below the surface to obtain the pods.

This very useful plant is a native of the warmer parts of America. It is now cultivated in Asia and Africa and in the southern districts of Europe. About Paris it is raised in hot-beds and transplanted into the open garden, where it ripens its seeds. It has also been brought to maturity in a stove in England, and proved very prolific.

In Cochin-China, oil obtained from the seeds, is used for lamps and as a substitute for the oil of olives. This oil, according to Dr Brownrigg of North Carolina, is pure, clear, and well tasted, not apt to become rancid, and a gallon of it may be obtained from a bushel of the seeds. According to another statement (Dict. Mat. Medic. I. 377.) the seeds give rather more than a third of oil; and if they are parched, nearly half of their weight may be obtained. In the latter instance, however, the oil is not so well tasted, and is only fit for burning or to make soap. In this Island they are principally used parched as an article of food, and in place of the almond, the pistachio, and other nuts in the dessert. In South Carolina they are roasted, ground, and boiled, and make a very good substitute for chocolate. Barham states, that when bruised in a mortar and applied as a poultice, they extract the sting of scorpions, wasps, and bees.

There is said to be a variety of this plant, cultivated in Brazil, strong and robust, about 12 feet in height, producing a great abundance of seed rich in oil.

## XLI. ANDIRA.

Calyx turbinate, campanulate, 5-dentate; teeth subequal, acute, erect. Corolla papilionaceous; stan-

dard roundish, emarginate, longer than the keel. Stamens diadelphous (9 and 1). Ovary 3-ovuled. Legume stipitate, suborbiculate, hardish, 1-locular, 1-seeded.—*De Cand.*

*Name*, from *αὐδὴος* the bank of a river; the locality in which plants, belonging to this genus, usually delight.

*Andira inermis. Bastard Cabbage Bark.*

Leaflets 13–15 oblongo-lanceolate acuminate glabrous, flowers paniced shortly pedicelled, calyx urceolate ferrugineo-puberulous.

*Geoffræa inermis*, *Swartz, Fl. Ind. Occ.* 1255.—*Wright, Phil. Trans.* 1777, p. 512, t. 70.

**HAB.** Common in the mountains, and by the banks of rivers.

**FL.** August.

A tree of moderate height; branches suberect; at their extremities terete, glabrous, ash-coloured. Leaves alternate about a foot in length, impari-pinnate: leaflets 5–8-paired (on short roundish ferrugineo-puberulous petiolules,) oblongo-rarely ovato-lanceolate, acuminate, for the most part rounded at the base, entire, glabrous, thin, with the nerves scarcely prominent, about  $4\frac{1}{2}$  inches long, and 1 broad: petioles minutely puberulous. Stipules subaxillary, lanceolate, persistent: stipels minute subulate. Panicle terminal, and axillary, erect; branches subdivided, patulous, angulose, of a brownish purple colour, ferrugineo-pubescent: pedicels very short, 1-flowered, numerous, crowded. Calyx turbinato-campanulate, ferrugineo-puberulous. Standard and wings clawed; keel composed of two petals, smaller than the standard. Stamens purple. Ovary stipitate: style subulate, curved: stigma simple. Legume size of a large plum.

The flowers are very showy, the beautiful reddish lilac of the petals contrasting well with the dark purple of the branches of the flower stalk. I could not detect that the legume, as stated by Swartz, was separable, when ripe, into two valves.

The bark of this tree has been employed as a vermifuge. It has a disagreeable smell, and a sweet mucilaginous taste. Its effects are emetic, drastic, purgative, and narcotic. In large doses it is poisonous, producing violent vomiting, with fever and delirium. It was first brought into notice by Dr Wright. A decoction of it (*Decoctum Geoffrææ inermis*) has obtained a place in the Edinburgh and Dublin Pharmacopœias. It is prepared by boiling an oz. of the coarsely powdered bark in 2 pints of water, over a slow fire, to 1 pint. The dose for adults is a table-spoonful, and for children a tea-spoonful, which may

be gradually increased till nausea is produced. The bark has also been given in powder in doses of from 1 to 2 scruples: and an extract and a syrup have also been prepared from it. In any of these forms, it is a powerful anthelmintic in cases requiring medicines of that class, and seldom fails to bring away great quantities of worms. The antidote for an overdose, is lime-juice, the effects of which, I have been informed, are certain, immediately relieving the nausea and delirium. A precaution is given, not to drink cold water during the action of the medicine.

### Tribe X. *Cassieæ*.

#### *Stamens free.*

### XLII. MORINGA.

Calycine sepals 5, subequal, oblong, deciduous, concrete at the base. Petals 5, subequal, oblong, with the upper one ascending. Stamens 10, unequal, distinct; sometimes 5 of them sterile. Style filiform, acute. Legume siliquæform, 3-valved: seeds 3-gonal, attached to the centre of the fruit, exalbuminose; embryo straight; cotyledons thick, oily, inclosed during germination within the spermodermium; plumule none.—*De Cand.*

Trees unarmed; leaves bi- or tri-pinnated, with an odd one; racemes panicle.—*Morunga, Moringu, Mouringou, &c.* are names by which the following species is known in the East Indies.

#### 1. *Moringa pterygosperma.* *Horse-radish Tree.*

Legume triquetrous, seeds trigonal, with the angles expanded into wings.

*Murunga, Rheed. Malab.* VI. 19. t. 11.—*Rumph. Amb.* I. 184. t. 74. and 75.—*Guilandina Moringa, Swartz, Obs.* 167.—*Hyperanthera Moringa, Willd. Spec.* II. 536.—*Moringa pterygosperma, Gærtn. Fruct.* II. 314. t. 147.—*De Cand. Prod.* II. 478.

HAB. Common.

FL. Throughout the year.

A tree 12–20 feet in height, of irregular growth. Root thick, of a soft consistence. Leaves alternate, 3-pinnate, nearly 2 feet in length: pinnæ 3-paired with an odd one, 6–10 inches in length: pinnules 5-paired with an odd one: leaflets petiolulated, of the lower pinnules 5-paired with an odd one, of the terminal pinnule 1-paired with an odd one, elliptic,

obtuse, wedge-shaped at the base, minutely puberulous above, glabrous beneath, obscurely nerved, about an inch in length: common petiole terete, jointed at the insertion of the pinnæ, curved between the joints, coloured, incano-puberulous: petioles of the pinnæ thickened towards the base: petioles of the pinnules angulose. A filiform puberulous glandule between each pair of pinnæ, pinnules, and leaflets. A glandular slit on each side of the insertion of the common petiole, occupying the place of stipules. Raceme paniced, axillary, shorter than the leaf, solitary: peduncle elongated, subterete, incano-puberulous: divisions alternate. Flowers pedicelled, 3-4 together, furnished at their insertion with linear bracteas. Sepals 5, subequal, oblong, reflected, white tinged with crimson, minutely tomentuloso-puberulous. Petals 5, one of them erect, the others subreflected; spathulato-oblong, white with a yellow tinge, stained with crimson externally near the base. Stamens unequal in length; 5 of them sterile; filaments subulate, villous externally at the base: anthers yellow. Ovary pedicelled, oblong, 3-quetrous, incano-pubescent: style filiform: stigma simple. Legume seldom more than a foot in length, 3-quetrous, 3-valved: seeds 15-16.

This tree is a native of the East Indies, and was introduced into this Island in the year 1784 by — East, Esq. It has since that been very generally cultivated, and is now to be met with every where. It grows readily from cuttings, so that a stake driven into the ground immediately takes root. It is a very ornamental, and also very useful tree. All parts of the plant are acrid to the taste. The root vesicates, and may be applied pounded as a rubefacient: it has the taste, and forms a very excellent substitute for Horse-radish. Sheep and hogs are very fond of the young branches and leaves; and a fine blue dye may be obtained from the wood. It has long been supposed, that it was from the seeds of this species, that the valuable oil, known by the name of the *oil of Ben* or *Behn*, was procured. It appears, however, that it is obtained from a different species, *MORINGA APTERA*, *DC.*, which has not yet been introduced into this Island. It is a native of the East-Indies, and distinguished by the *seeds* being *triquetrous* and *not winged*. (Gærtn. Fruct. II. 315.) A very excellent palatable oil, however, may be procured, by expression, from the seeds of the plant before us.

### XLIII. GUILANDINA.

Calycine sepals 5, nearly equal, united at the base into a short urceolate tube. Petals 5, sessile, subequal. Stamens 10, with the filaments villous at the base. Style short. Legume ovate, ventricosocompressed, externally echinated, 2-valved, 1-3-seeded:



seeds osseous, shining, subglobose, exalbuminous.—  
*De Cand.*

*Named* after Melchior Guilandin, a Prussian traveller in Africa, demonstrator of Botany at Padua in the 16th century.

1. *Guilandina* Bonduc. *Oval-leaved Nicker-tree.*

Leaves pubescent or villosa-subvelutina.

*Lobus echinatus fructu flavo, foliis rotundioribus, Sloane, II. 40.—Lobus echinatus fructu cæsius, foliis longioribus, Sloane, II. 41?—Guilandina spinosa, foliis bipinnatis ovatis cum acumine, Browne, 228.—G. Bonduc, Ait. Hort. Kew. III. 32.*

HAB. Common along the sea-shore.

FL. Throughout the year.

A shrubby tree, 10–20 feet in length: branches long and prickly, supported on neighbouring trees and shrubs. Prickles in pairs, hooked. Leaves abruptly pinnated: pinnae 7-jugate: leaflets 8-jugate, nearly 2 inches long and 1 broad, oval, subcordate, obtuse, mucronate, pubescent, of a light green colour: petiole armed with single hooked prickles. Racemes a foot or more in length: flowers yellow, fragrant, pedicelled, each furnished at the base with an inch-long lanceolate bractea. Calyx with the divisions obtuse, externally glanduloso-pilose. Petals somewhat unequal. Filaments subulate, pubescent: anthers greenish. Ovary small: style short: stigma bearded. Legume ovate, rhomboidal, compressed, covered with numerous stiff but not pungent herbaceous spines: seeds 2–3, ovato-globular, shining, at first yellowish, but afterwards of a greyish colour, with the hilum brown.

The above is the description of the Nicker-tree, common along the sea-shore in every district I have visited. There is a variety, formerly considered as a distinct species, under the name of *G. BONDUCELLA*, described as being of a smaller growth, and with the leaflets ovato-oblong, with which I have not met.

This shrubby tree is to be met with along the shores of the tropical regions of the old as well as the new world. It is, doubtless, indebted for this extensive diffusion, to the waters of the sea conveying the seeds, scattered along their borders, to distant coasts. Medicinal properties have been attributed to different parts of the tree. A cataplasm of the leaves have been applied in hydrocele and other swellings of the scrotum; a decoction of the roots has been recommended for the bites of venomous reptiles; and the seeds which are bitter and act as an emetic, have been given in substance as a tonic in intermittent fever, and in emulsion for gonorrhœa.

#### XLIV. COULTERIA.

Calyx turbinate at the base, 5-fid: the four upper



lobes subequal, the lower one larger and glanduloso-dentate in the manner of a comb. Petals 5, with the upper one larger. Stamens 10; filaments free, slightly bearded at the base. A nectariferous glandule at the upper side of the ovary. Style short: stigma glanduloso-subciliated. Legumes compresso-plane, spongy, scarcely dehiscent: seeds 4-6.—*De Cand.*

American trees or shrubs, with axillary spines; leaves abruptly pinnated; flowers racemose, yellow.

### 1. *Coulteria tinctoria*. *Dibi-Deri*.

Leaflets glabrous ovali-oblong, petioles unarmed subpuberulous, calyx glabrous, legumes glabrous sessile obtuse.

*Cæsalpinia pectinata*, *De Cand. Cat. H. Monsp.* 84.—*Poinciana Tara*, *Ruiz. et Pav.*—*Coulteria tinctoria*, *H. B. et Kunth*, VI. t. 569.

HAB. Cultivated.

FL. Throughout the year.

This valuable shrub has been lately introduced into the Island by Henry Bright, Esq., and promises to be a great acquisition. The pods abound in the tannin principle, and in Gallic acid, so that it is adapted to the purposes of tanning, and may also serve as a substitute for nut-galls in dyeing and ink making. It has been found to thrive in every situation, even where the soil is light and gravelly, and where it has been exposed to the extreme of dry weather. It comes into bearing in a year, and continues to flower and to bear fruit in constant succession. About two crops may be annually obtained; that, towards the end of the year, being the most abundant. I am confident that it will, in course of time, be extensively cultivated.

## XLV. CÆSALPINIA.

Calycine sepals 5, concrete at the base into a subpersistent cupula; the lowest larger than the rest, subfornicated. Petals 5, unequal, clawed; the upper one shorter than the rest. Stamens 10; filaments villous at the base, ascending: all the anthers fertile. Style filiform. Legume unarmed, compressed, 2-valved. Seeds ovali-oblong, compressed: plumule elongated.

Trees or shrubs, prickly or unarmed; leaves abruptly pin-

nated; flowers yellow.—*Named* by Plumier, in honour of Andreas Cæsalpinus, author of several botanical works, and physician to Pope Clement VIII.

1. *Cæsalpinia Brasiliensis*. *Brasiletto-Wood*.

Unarmed, pinnæ 4-paired, leaflets 7-8-paired, elliptic or oval obtuse subglabrous, rachises and calices pubescent, racemes simple or subpanicled, pedicels rather shorter than the flowers, and stamens than the corolla. Legumes thin plano-compressed.

C. arborea inermis, foliis minoribus, paribus bipinnatis, ligno kermesino, *Browne, Jam.* 227.—C. Brasiliensis, *Swartz, Obs.* 166.—*De Cand. Prod.* II. 482.

HAB. Common in dry limestone districts.

FL. January.

A tree, seldom more than 15 feet in height, with spreading unarmed branches. Leaves bi-pinnate: pinnæ 4-paired: leaflets 7-8-paired, sub-opposite, shortly petiolulated, oval, obtuse at the apex, shining and minutely puberulous above, ciliated, puberulous beneath, especially along the mid nerve, 1-1½ inch in length: common petiole subterete, pubescent. Racemes sometimes axillary, solitary, simple; at other times crowded into a sort of panicle at the ends of the branches, many-flowered: rachis angulose, pubescent: pedicels short (about 3 lines in length), puberulous: flowers small, yellow. Calyx externally puberulous, 5-fid; 4 of the segments subequal, oval, blunt, crisped, lacerato-fimbriated; the 5th and lowest segment large, roundish, concave, crisped, pectinated. Petals, 4 of them subequal, clawed, oblong, puberulous towards the claw; the 5th without a claw, broad at the base, rounded, concave at the apex so as to be somewhat hooded, ciliated, puberulous. Stamens 10, subequal: filaments subulate, hairy towards the base: anthers oblong, yellow. Ovary oblong, villous: style short: stigma simple. Legume 2½ inches long and nearly one broad, thin, samaroid, leaflike, slightly inflated at the situation of the seeds, linear, acuminate at the base, obtuse at the apex, glabrous, 4-seeded: seeds ovoid, compressed.

De Candolle has described the legumes of this species as one-seeded. The wood of this tree, according to Browne, is very hard, of an orange tinge, and takes a fine polish; it is full of resin, and gives, on infusion, a fine full tincture. It is much used for ornamental purposes in cabinet-making, and it is considered to be peculiarly well adapted for making the spokes of the wheels of carriages. I am not aware that it is at present ever cut down for exportation as a dye-wood. The best Brazil wood for dyeing is said to be produced by the C. ECHINATA, a native of Brazil.

2. *Cæsalpinia bijuga*. *Indian savin Tree*.

Glabrous prickly or subunarmed, leaflets duplicato-bijugate more or less obcordate, racemes paniced, flowers shortly pedicelled.

*Senna spuria arborea spinosa*, *Sloane*, II. t. 181. f. 2. 3.—*Acacia gloriosa Jamaicensis*, *Plum. Alm.*—*Poinciana bijuga*, *Jacq. Am.* 123.—*Cæsalpinia bijuga*, *Swartz, Obs.* 166.

HAB. Common in dry savannahs.

FL. October—December.

A tree 15–20 feet in height, erect: branches round, glabrous: prickles axillary, solitary, or in pairs one on each side of the base of the petiole, or sometimes awanting. Pinnæ 2-paired; each pinna of two pair of leaflets: leaflets shortly petiolulated, somewhat difformed and unequilateral, narrowing towards the base, broad and rounded and occasionally emarginate at the apex, and hence obovate and more or less obcordate, an inch in length: common petiole about 2 inches in length. Flowers showy, yellow, numerous, shortly pedicelled, arranged in a terminal paniced raceme. Calycine sepals 5, concrete at the base to form a subpersistent cupula, unequal; four of them oblong, obtuse, petaloid, yellow; the fifth longer, concave, greenish. Petals 5, rather longer than the sepals, unequal; 4 of them shortly clawed, with the claws hirsute with white hairs, oblong; the fifth broad and hirsute at the base, hooded, obtuse, yellow spotted with orange. Stamens equal in length to the petals; filaments hirsute for the greater part of their length: anthers ovate. Ovary linear, hispid: style erect, hirsute: stigma simple. Legume an inch and a half in length, and half an inch in breadth, glabrous, thickened along the sutures, 3-seeded, ventricose at the situation of the seeds, so that when the pod is ripe they rattle. Seeds subquadrate, compressed, smooth, shining, black.

All parts of this tree give out, when bruised, a strong balsamic scent. The pods have some resemblance to those of *C. coriaria*, and might, I have no doubt, be employed for similar useful purposes. The tree, when in blossom, has a very beautiful appearance on the dry parched savannahs, from the bright yellow of the flowers contrasting with the deep green of the leaves.

3. \* *Cæsalpinia Crista*. *Oval-leaved Brasileto*.

Prickly very glabrous, pinnæ 1–3-paired, leaflets obovate generally obcordate, racemes simple, pedicels 3 times longer than the flower, petals shorter than the calyx.

*Cæsalpinia polyphylla aculeis horrida*, *Plum. Gen.* 26. t. 68.—*C. crista*, *Linn. Sp.* 544.

HAB. Jamaica?

FL. —?

4. *Cæsalpinia coriaria*. *Divi-divi*, or *Libi-dibi*.

Unarmed glabrous, pinnæ 6-7-paired, leaflets 15-25-paired linear obtuse, racemes paniced, pedicels shorter than the flower, legume laterally incurved spongy submultilocular.

*Willd. Spec. II. 532.*—*Poinciana Coriaria*, *Jacq. Am. 123. t. 175. f. 36.*—*C. coriaria*, *Kunth, Mim. t. 45.*

HAB. The Spanish-Town road, near the 4 mile stone. Near Halfway Tree Court-House.

FL. May and September, after rains.

A tree, 20-30 feet in height: branches spreading, at their extremities terete, glabrous. Leaves at the ends of the short branchlets, alternate, bipinnate; pinnæ 6-7-paired with an odd one: leaflets 20-24-paired, one-third of an inch in length, lineari-oblong, rounded at the apex, unequally cordate at the base, with a row of glandulose dots within the margin, entire, glabrous: common petiole subterete, as also the partial ones minutely puberulous. Stipules minute, deciduous. Raceme a paniced thyrses, axillary, and terminal, shorter than the leaf, composed of a number of pedicelled fragrant white flowers crowded together. Common peduncle divided: pedicels short, about a line in length. Sepals 5, subconcave, rounded at the apex, reflected; the lowest one the largest, and subforficated. Four of the petals equal, rounded, clawed; the fifth and upper one lip-like, situated more interiorly, and shorter than the rest, somewhat recurved, boat-shaped. Stamens 10, distinct: filaments subulate, internally villous: anthers ovate. Ovary compressed, glabrous: style slightly curved, coloured: stigma obtuse. Legume oblong, laterally incurved, spongy, 8-seeded.

In some of the flowers there are only 8 stamens, and 4 sepals and petals.

This, like the *COULTERIA TINCTORIA*, is a very valuable plant, and promises, were the cultivation more general, to be of great advantage to the Island. Like the *Dibi-deri*, it is very hardy, and thrives in the hottest and driest situations, where scarcely any other cultivation can be carried on. The pods are very rich in the *tannin* principle, and are imported in considerable quantities from Carthage, to be employed in the tanning of leather. It is only of late that the plant has been discovered to be indigenous to our own Island; but the number of trees are as yet too few to meet the demand. It might be planted with great advantage in our dry pastures, affording a fine shade, and producing its fruit frequently, and without any care being required.



## XLVI. POINCIANA.

Calycine sepals 5, unequal, united at the base into a persistent cupule; the lowest one hooded. Petals 5, clawed; the upper one difformed. Stamens 10, very long, all perfect; filaments hirsute at the base. Style very long. Legume plano-compressed, 2-valved, submultilocular with spongy isthmi: seeds obovate, compressed; endopleura a gelatinous fluid; cotyledons plane; plumule oval.—*De Cand.*

*Named*, by Tournefort, in memory of De Poinci, Governor of the Antilles, a patron of Botany.

*Poinciana pulcherrima.* *Barbadoes Flower-fence* or *Pride.*

Prickly, leaflets obovate, calyx smooth, petals fimbriated on a long claw.

*Senna spuria arborea spinosa, foliis alatis ramosis seu decompositis, flore ex luteo et rubro specioso, Sloane, II. 49.*—*Cæsalpinia pulcherrima, Swartz, Obs. 166.*—*Poinciana aculeata, Browne, 225.*—*P. pulcherrima, Jacq. Amer. 122.*—*De Cand. Prod. II. 484.*

HAB. Dry thickets. River-courses. Liguanea.

FL. Throughout the year.

This prickly shrub is usually about 10 feet in height. The flowers are very showy, red or less frequently yellow, with long stamens, arranged in a terminal corymb. It is supposed to have originally been a native of the East Indies. It appears, however, from Sloane, to have been common at a very early period after the discovery of the Island. It is stated by Ligon, that it was brought to Barbadoes from the Cape de Verd Islands.

The leaves when bruised have a smell resembling that of savine, and the infusion, as also that of the flowers, is considered a powerful emmenagogue, so as even to bring on abortion. The leaves are also said to be purgative, and to have been used as a substitute for senna. The seeds, in powder, are stated to form a remedy for the belly-ach. It has been proposed to employ the shrub itself in making fences; but it is not well adapted for this purpose, from the branches being long and not much subdivided, and few and naked towards the root.

XLVII. HÆMATOXYLON. *Logwood.*

Calycine sepals 5, coalescing at the base into a short



subpersistent tube; segments deciduous, oblongo-obtuse. Petals 5, scarcely longer than the calyx. Stamens 10, with the filaments pilose at the base, and the anthers eglandulose. Style capillary. Legume compressed-plane, lance-shaped, acuminate at both ends, 1-celled, 2-seeded; sutures closed, bursting longitudinally at the middle of the valves: seeds transversely oblong; cotyledons 2-lobed.—*De Cand.*

There is only one species belonging to this genus. *Name*, derived from *αἷμα blood*, and *ξύλον wood*, either from the colour of the decoction, being that of dark venous blood; or, more probably, from the red colour of the inner bark and wood.

1. *Hæmatoxylon Campechianum*. *Campeachy Logwood*.

*Lignum Campechianum*, *Cat. Car.* III. t. 66.—*Sloane*, II. t. 10. f. 1—4.—*Hæmatoxylon spinosum*, *Browne*, 221.

HAB. Common.

FL. After the May and Autumnal rains.

A low spreading tree; stem generally crooked and difformed, seldom thicker than a man's thigh; branches somewhat flexuose, terete, albido-punctate; in mountain and moist situations unarmed; in the plains or where the tree is stunted, furnished with spines below the leaves. Leaves 2–4 from the same point (an irregular rough tubercular prominence), pinnate, sometimes dividing in a bipinnate manner at the lowest pair of leaflets; leaflets 4-paired, shortly petiolulated, obovate or obcordate. Racemes at first about the length of the leaf, afterwards, as the pods form, elongating. Flowers on pedicels half an inch in length, yellow, slightly fragrant. Calyx deeply 5-partite; lobes unequal, thin, membranaceous, purpurascens, deciduous; tube short, green, bell-shaped. Petals subequal, obovate, wedge-shaped at the base, scarcely longer than the sepals. Stamens alternately short, inserted, as also the petals on the inside of the margin of the persistent tube of the calyx: anthers ovate. Ovary lanceolate, compressed, 3-ovuled: style projecting beyond the stamens and petals: stigma capitato-expanded. Pods compressed, plane, lanceolar, acuminate at both ends, 1-celled, 2-seeded, not opening at the sutures, but bursting longitudinally by a division passing down through both of the valves.

The Logwood is originally a native of Campeachy. It was introduced from Honduras in 1715. Few plants have been so completely naturalized. It thrives in every situation, with the exception of the loftier mountains, and, with the *Opoponax* and *Cashaw*, occupies our plains. It is cut up into logs for exportation. The inner bark and the wood are red; the latter is very

hard, and towards the centre dark, and is so heavy as to sink in water. It has a sweetish astringent taste, but little or no smell. Infused in water or alcohol it gives out at first a fine red colour with a shade of purple; but as the process is continued, it becomes gradually deeper, and at last almost black.

According to Chevreul, Logwood contains a volatile oil, tannin, a yellow colouring matter, and acetates of lime and potash. But the most remarkable of its constituents is the newly discovered substance to which the name of *Hematin* has been given. It was obtained by Chevreul by evaporating the filtered watery infusion to dryness; digesting the residue in alcohol, which on being again filtered and evaporated yielded crystals of *Hematin* of a reddish white colour. This principle is supposed to constitute the colouring matter of Logwood.

The principal consumption of Logwood is in dyeing. When of a good quality it yields from  $\frac{1}{15}$  to  $\frac{1}{20}$  of pure colouring matter. No colouring substance affords so great a variety of dyes. Chips of it boiled in water acidulated with sulphuric acid afford a brownish yellow decoction, which communicates to wool a bright snuff colour of considerable durability. If nitric acid be substituted, the infusion becomes a bright yellow; and if muriatic acid, a brownish yellow. Alum throws down a purple or reddish violet precipitate; sulphate of iron, a copious bluish black; sulphate of copper, a purplish blue; the solutions of tin, purple or violet; sulphate of pure zinc, a dark purple; muriate of antimony, a beautiful crimson; acetate of lead, a black precipitate with a slight reddish tinge; muriate of barytes, a reddish purple; sulphate of lime, a purple; arseniate of potash, a deep yellow.

The salts of tin as mordants give the best and most permanent of the purple or violet colours obtained from Logwood, and the sulphate of copper or verdigris, a blue of little brightness or permanency, but recommended by its cheapness.

Logwood is principally employed in dyeing, to give a lustre and velvety cast to blacks, and for greys of certain shades. It also affords certain compound colours which it would be difficult to obtain of equal beauty and variety from colouring matters of a more permanent nature. The great disadvantage indeed of the dyes obtained from Logwood is their want of permanency.

I need scarcely add that the infusion of Logwood is an important material in ink-making.

The wood of this tree, from its great hardness and compactness, takes a fine polish. I am not aware that it has as yet come into use among our Cabinet-makers.

The tree itself makes a beautiful and strong fence. It is usually established by means of young plants, which may be procured in great abundance wherever the old trees grow. They should be all of nearly the same size and strength, and they ought to remain untouched by the pruning-knife till the end of the

second year. We may then commence, leaving the lower limbs long, and gradually shortening the branches as we approach the top, so that the fence may gradually taper up in a wedge-like form. If treated in this manner, the Logwood forms a hedge superior to almost any other, not excepting even the Hawthorn, which, in appearance, it so much resembles. I may instance the Logwood fences in Vere, which are trimmed in this manner, and are equal to any of the Hawthorn fences to be seen in England.

The Logwood is a powerful astringent, and may be employed as a substitute for Kino, Catechu, or any other of this class of remedies. In diarrhœa and chronic dysentery, the decoction is used with great benefit. In Long's work, it is recommended to take 2 oz. of the chips, and a quart each of milk and of water, and to boil the whole down to one quart; of which, a tea-cupful is to be given every 3 hours. As an external application, on one occasion the leaves, beat up into a pulp with a little turpentine added, were applied to a phagedenic sore, of a very obstinate character, with the best effects.

#### XLVIII. PARKINSONIA.

Calycine sepals 5, equal, patenti-reflected, shortly united at the base. Petals 5, ovate, plane: the upper one subrotund, with the claw long. Style filiform, subascending. Legume lineari-oblong, acuminate at both ends, torose: seeds oblong; endopleura tumid; cotyledons oblong; radicle ovate; hilum linear.—*De Cand.*

*Named*, by Plumier, after John Parkinson, Apothecary in London, author of some Botanical works.

##### 1. *Parkinsonia aculeata.* *Jerusalem Thorn.*

*Browne*, 222.—*Jacq. Amer.* 121. t. 80.

HAB. In the vicinity of houses: probably from cultivation.

FL. Throughout the year.

A prickly shrub, 12–15 feet in height: prickles solitary or in threes. Leaves pinnated; leaflets frequently deciduous or abortive: petiole very long, linear, winged. Racemes loose. Petals yellow; the upper one variegated with reddish spots.

This is a very ornamental shrub, of quick growth.

#### XLIX. TAMARINDUS.

Calycine sepals 5, united at the base into a tube, with the limb free and reflected; three of them are oblong; two inferior, connate into a single lobe,

broad, binervose, and frequently bidentate at the apex. Petals 3, alternate with the superior sepals; 2 of them ovate and hooded at the middle. Stamens 9-10; 2-3 longer than the rest, monadelphous, anther-bearing; 7 very short, sterile. Style subulate. Legume pedicelled, scimitar-shaped, compressed, 1-celled, 3-6-seeded; valves pulpy between the epispERMium and the endospERMium: seeds obliquely truncated at the hilum, ovato-quadrata; cotyledons unequal at the base.—*De Cand.*

*Name*, Latinized from the Arabic *Tamer-hindy*, *Indian-date*.

1. *Tamarindus occidentalis*. *West-India Tamarind*.

Legumes abbreviated the length scarcely 3 times the breadth, 1-4-seeded by abortion.

*Blackw. Herb.* t. 201.—*Jacq. Amer.* 10. t. 18. et t. 179. f. 98.—*Gærtn. Fruct.* II. 310. t. 146.—*De Cand. Prod.* II. 489.

*HAB.* Common in the plains.

*FL.* April.

A lofty spreading tree. Leaves alternate: leaflets 15-paired, oblong, rounded or subemarginate at the apex, glabrous. Racemes subterminal, half the length of the leaves.

I doubt the propriety of considering this as a distinct species from the *T. INDICA*, or *East-India Tamarind*. The only difference between them is, that the pods of the *West India* tree are much shorter and fewer-seeded, than those of the *East India* variety; the latter being 6 times broader than their length, and 8-12-seeded. This, however, may probably be owing to the soil and climate in these Islands, not being so congenial as in their native region. We are informed by Ainslie,\* that the *Tamarinds* of *Java* and of the depending *Island Madura*, are the best in *India*. In this *Island*, the tree bears most abundantly in the rich deep mould of the plains.

The pulp of the *Tamarind* contains citric acid, malic acid, supertartrate of potash, sugar, gum mucilage, and other vegetable principles. The *East-India Tamarinds* are preserved without sugar, being merely dried in the sun, when they are intended to be exported from one part of the *Archipelago* to another, and cured in salt when they are to be sent to *Europe*. In the *West Indies*, the pulp is usually packed in small kegs between layers of sugar, and hot syrup is poured on the whole. In order to enable them to keep without fermentation for a



length of time, the first syrup, which is very acid, is poured off, and a second is added. It is evident, that the East India Tamarinds, from the method in which they are preserved, must be the best adapted for medicinal purposes. A very excellent preserve is imported from Curaçoa, made from the unripe pods, preserved in sugar, with the addition of spices.

The pulp of the Tamarind is cooling and laxative, of a grateful acidulous sweetish taste, and without smell. It is stated by Mr Rennie,\* to be incompatible with infusion of senna (having been found to weaken its effects), with the resinous purgatives, with the tartrites of soda and potash, and with tartar emetic. It is used infused in water to form a refreshing beverage; or is mixed with cassia or mauna as a laxative; or is boiled with milk and strained, to make Tamarind whey, as a cooling drink in fevers. A very good gargle for sore throat may be prepared from the pulp of the fresh pods. The seeds are eaten in times of scarcity by the poorer classes of India. They are first toasted, and then soaked for a few hours in water, when the skin comes off readily, leaving the seed white and soft: they are lastly boiled or fried, and are said to resemble the common field-bean in taste. The tree itself is very ornamental, and affords a delightful shade. The inhabitants of the East have a notion that it is dangerous to sleep under it; and, it may be remarked, that the ground is bare and no plant appears to thrive under its branches.

The leaves have an acid taste, and an infusion of them, according to Prosper Alpinus, is given as a vermifuge by the Arabs to their children.

#### L. CASSIA. *Cassia*.

Calycine sepals 5, scarcely united at the base, more or less unequal. Petals 5, unequal. Stamens 10, free, unequal; 3-4 inferior and long; those in the middle short, straight; 2-3 superior with abortive diffused anthers: anthers dehiscent at the apex. Ovary stipitate, frequently arcuate. Legume varying.

This genus comprehends trees, shrubs, and herbaceous plants. Leaves alternate, and, in our Jamaica species, abruptly pinnated. Petioles generally glanduliferous. Several of the species have a purgative property.—*Name*, of Hebrew derivation.

\* New Supplement to the Pharmacopœias, 433.



SECT. 1. *Calycine sepals obtuse. Anthers ovate, bitermose at the apex. Legumes terete, multilocular with transverse partitions ; cells filled with pulp : seeds horizontal.*

1. \* *Cassia Brasiliana ? Horse Cassia.*

Leaflets 10–20-paired ovali-oblong equal at the base submucronate at the apex puberulous above softly tomentose-hairy beneath, younger leaves tomentose, racemes axillary shorter than the leaf, legumes compressed rugose very long.—*De Cand.*

*Cassia nigra seu fistulosa secunda sive Cassia fistula Brasiliana, Sloane, II. 44?—C. foliis plurimis oblongis pinnatis, flore rubello, siliquis maximis, crassioribus, trinerviis, Browne, 223 ?—C. Javanica, Lunan's Hort. Jam. I. 383 ?*

HAB. Cultivated.

FL. January—March.

2. *Cassia fistula. Purging Cassia.*

Leaflets 4–6-paired ovate subacuminate glabrous eglandulose, racemes lax ebracteate, legumes terete straight subobtusely glabrous.

*Gærtn. Fruct. II. t. 147. f. 1.—Woodville, Med. Bot. t. 163.—Lam. Bot. Ill. t. 332.—Lunan's Hort. Jam. I. 164.*

HAB. Not indigenous. Common in low warm situations.

FL. April.

This tree varies in size: it is sometimes low and irregular; at other times lofty and spreading, from 40–50 feet in height. The leaflets are in some specimens distinctly acuminate. Racemes subsimple, pendulous, making their appearance in the spring, when the old leaves are shed, and previous to the development of the new ones. The flowers are large, showy, yellow, and slightly fragrant.

This is a native of the East Indies, introduced into the warmer parts of America, where it is now naturalized. The pods are commonly exposed for sale in the Kingston market. The pulp is of a shining brownish-black colour, and of a sweet taste. It has the smell of decayed fruit; is viscid and soluble in water. An extract is prepared by bruising the pods with the seeds, dissolving in boiling water, straining through a horse-hair sieve, and reducing by boiling to a proper consistence. The dose is about an ounce or two of the extract, or double the quantity of the pulp. It acts as a mild laxative, very pleasant to the taste, and very gentle in its operation. It is contra-

indicated in debility of the stomach and bowels, attended with flatulence or acidity. The analysis of 20 parts of Cassia gives, according to Henry: sugar 12.20; gum 1.35; tanning matter 2.65; traces of gluten (?); a small proportion of colouring matter; water and loss 3.80.

The roots of this tree are branched, smooth, and large, and contain a bitter principle, said to be febrifuge, and capable of being employed as a substitute for *Quinine*. M. Caventon, who made some investigations into the subject, regards it as a powerful diuretic, and found that, like *rhobarbarin* and *colocyn-thine*, it forms combinations, slightly soluble, with sulphuric, nitric, and muriatic acids.

The seeds of the Cassia, in the dose of 4–6 drachms, are purgative. The flesh of animals, which have fed on the leaves, is also said to acquire this property.

SECT. 2. *Sepals very obtuse. Anthers biporose at the apex. Legumes terete, scarcely dehiscent, thin, membranaceous, multilocular with transverse partitions; cells sparingly supplied with pulp: seeds horizontal.*

3. \* *Cassia melanocarpa. Black-podded Cassia.*

Leaflets 2-paired ovato-lanceolate obtusely acuminate shining above very glabrous as also the branchlets and petioles, lower leaflets smaller, a cylindrical acute glandule between each pair, racemes peduncled axillary, legumes straight terete.—*De Cand.*

*Bertero, De Cand. Prod. II. 491.*

HAB. Jamaica.

FL. — ?

SECT. 3. *Sepals subobtuse. Anthers biporose. Legumes with the valves furnished with an acute foliaceous wing, many-celled by transverse partitions; cells subpulpose: seeds horizontally placed, compressed, in general obcordate.*

4. *Cassia alata. Ring-worm Shrub.*

Leaflets 8–12-paired, lower ones in general linear-oblong, terminal pair always obovato-oblong, glabrous on both sides or puberulous on the under surface, petioles eglandulose.

*Iuglandis folio*, *Sloane*, II. 59. pl. 175. f. 1.—*Cassia herpetica*, *Jacq. Obs.* II. t. 45. f. 2.—*C. alata*, *H. B. et Kunth*, VI. 347.—*Swartz, Obs.* 162.—*De Cand. Prod.* II. 492.

HAB. Fording of Sulphur River, near Bath. Near the Ferry.

FL. Spring and Autumn.

An erect shrub, 6 feet and more in height: branches simple, striated. Leaves large, 1-2 feet in length; leaflets, the lowest pair very close to the axilla, the terminal pair obovato-oblong, the rest lineari-oblong, or oblong with the apex rounded, retuse with an orange-coloured apicula in the indentation; subglabrous, minutely punctulated, with numerous minute orange ovoid glandules along the midrib on the upper surface; pubescent beneath; margined, penninerved: petiole incrassated at the base, 3-quetrous, plane on the upper surface with the edge raised so as to approach subulate, and with the channel thus formed divided by isthmi, connecting the opposite pairs of petiolules, upon which may be detected numerous minute setaceous black abortive glandules; the under side of the petiole sharply keeled. Stipules about an inch in length, lanceolato-falcate, auriculated at the base on the inner side; the margin reflected, and incrassated, and more or less of an orange colour. Racemes spiked, a foot or more in length, terminal, erect, bearing numerous large showy yellow flowers. Pedicels very short. Bractees large, roundish-obovate, generally eroded at the apex, concave, thin, diaphanous, yellow, loosely imbricated, concealing the flower, deciduous. Sepals subequal, similar in every respect to the bractees, but much smaller, and with the apex rounded. Petals clawed, roundish, undulato-fimbriated, subequal; one of them more concave than the rest. Stamens, the two largest with the anthers abortive recurved and retuse at the apex; another but half their size but similar to them in every other respect; four others, with fertile anthers, of a still smaller size; the three last and smallest abortive. Ovary stipitate, recurved, minutely puberulous: stigma obtuse. Pod about 10 inches in length.

This is the most showy of our native Cassias. After flowering, a young shoot makes its appearance near the root, and the old stem decays and dies. Ants are very fond of the flowers. The juice of the leaves and buds have been employed in the cure of ring-worm, and other cutaneous diseases. The infusion has been used, as a tepid bath, in similar cases. The flowers and young leaves, beat into a pulp, make an excellent poultice for the superficial sores which follow some varieties of impetigo and rupia.

SECT. 4. *Sepals obtuse. Anthers 2-pored. Legumes membranaceous broad plano-compressed plurilocular with transverse partitions, scarcely dehiscent, torose at the seeds, scarcely pulpy within: seeds vertical, generally obcordate.*

5. *Cassia obovata. Obovate-leaved Senna.*

Leaflets 6-7-paired obovate obtuse, petiole eglandulose, legumes plano-compressed arcuate subcristate at the middle tumid.—*De Cand.*

*Senna secunda Italica s. foliis obtusis, Sloane, II. 47.—Cassia senna, Swartz, Obs. 161.—C. Portu-regalis, Bancroft, MS.*

HAB. Common, near the town of Port-Royal.

FL. Throughout the year.

This is, in my opinion, an introduced plant, originally a native of Egypt. The leaves are very generally employed as a substitute for the Senna of the shops.

SECT. 5. *Sepals obtuse. Anthers oblong, 2-pored. Legumes compressed, dehiscent, with the sutures slightly tumid, multilocular with transverse more or less complete partitions; cells not pulpy. Seeds vertical, parallelly compressed by the valves.*

6. *Cassia sericea. Silky Cassia.*

Leaflets 3-4-paired sericeo-pilose oval, a subulate glandule between every pair of leaflets, legumes hirsute subtetragonal transversely subarticulated.

*Swartz, Fl. Ind. Occ. 724.—Dec. Prod. II. 493.—C. Sensitiva, Jacq. Ic. Rar. t. 459.*

HAB. Subalpine pastures—Hills of St Dorothy and St John's.

FL. August—September.

Suffruticose, erect, about 3 feet in height, angular, pilose towards the extremities. Leaflets mucronate: petiole compressed, channelled above, pilose. Stipules an inch long, linear, sericeo-pilose. A long subulate orange tipped glandule beneath each pair of leaflets. Peduncles axillary, shorter than the leaf, bearing several rather small yellow flowers. Bractees linear, larger than the flower. Sepals subrotund, with one as it were superior and rather larger. Petals subequal, with two inferior more concave. Stamens 4 minute, sterile; 4 in the middle small but fertile; 2 longer. Ovary hirsute: style inclinate: stigma inflected, capitate-depressed. Legumes erect,



subtetragonal, subarticulate from the seeds, hirsute: seeds oblong, truncated at both ends.

### 7. *Cassia obtusifolia*. *Blunt-leaved Cassia*.

Leaflets 3-paired obovate rounded at the apex with an apicula pubescent, a stalked oblongo-cylindrical glandule between the lowest pair, stipules lineari-subulate, pods long gracile recurved.

*Swartz, Obs.* 158.—*De Cand. Prod.* II. 493.

HAB. Common in waste places.

FL. September, October.

Suffruticose, 1–2 feet in height, suberect: branches at their extremities striated, pubescent, slightly scabrous. Leaflets, the outermost pair the largest: common petiole about 3 inches in length, 3-gonal, pubescent. Stipules half an inch in length, linear. Flower-stalk axillary, solitary, very short, dividing into 2 pedicels: pedicels about an inch in length, anguloso-sulcated, 1-flowered, furnished at their insertion with a lanceolate ciliated bractea. Calycine sepals unequal, the two outer being the smallest, and oblong; the three inner elliptic, blunt, parallelly 5-nerved, ciliated. Petals subequal, clawed, obovato-oblong, veined; the two lower rather smaller than the rest, and contiguous; the rest spreading. Stamens 7–8, fertile, subequal; 3–4 minute, abortive. Ovary linear, cylindrical, arcuate, longitudinally sulcated, puberulous: style short: stigma obtuse, excavated, puberulous. Legume about 5 inches long, cylindrical, arcuate, curved, puberulous, many-seeded: seeds ovate, angular.

### 8. *Cassia viminea*. *Trailing-branched Cassia*.

Leaflets 2-paired glabrous ovato-oblong acuminate, an oblong acute glandule between the lowest pair, petiole with an awn beneath at the extremity.

*Senna spuria* 4-phylla, siliqua lata compressa, *Sloane*, II. t. 180. f. 6 et 7.—*C. viminea*, *Swartz, Obs.* 156.

HAB. Common in mountain thickets.

FL. Autumn.

A trailing shrub, ascending to a considerable height by throwing its long slender branches over neighbouring rocks and trees; extremities of the branches anguloso-sulcated (the furrows parallel), pubescent. Leaflets the outer pair the largest, unequal at the base, shortly petiolulated, shining above. Stipules setaceous. Racemes terminal, and axillary, many-flowered. Flowers rather large, showy, yellow. Sepals and petals subunequal. Stamens subequal, with the exception of



the uppermost pair, which are very small. Ovary arcuate, incurved, cylindrical, puberulous. Legume — ?

I regret omitting to examine the fruit of this species. Swartz merely describes it as short and compressed.

### 9. *Cassia biflora*. *Two-flowered Cassia*.

Leaflets 6–8-paired ovali-oblong or obovate mucronate subglabrous, with a pedicelled conical glandule between the lowest pair, peduncles axillary two together, each 2-flowered shorter than the leaf.

*C. fruticosa*, foliis minoribus obovatis, floribus geminis s. bigeminatis, *Browne, Jam.* 223.—*C. minor*, siliquis planis, *Plum. ed. Burm.* t. 78. f. 1.—*C. biflora*, *Sims, Bot. Mag.* 810.

HAB. Common on the Windward road.

FL. October—December.

A shrub, 3–5 feet in height: branchlets terete, glabrous. Leaflets usually 7-paired, petiolulated, somewhat obovate towards the base, glabrous: petiole channelled above, minutely puberulous. Stipules deciduous. Peduncles axillary, two together, filiform, about an inch in length, each 2-flowered: flowers showy yellow, on a pedicel the length of the common peduncle: 1 or 2 pedicelled orange-coloured glandules at the divisions of the peduncle. Sepals unequal, subrotund, concave. Petals unequal; the two smallest clawed, oblongo-spathulate; the largest one dimidiato- or falcato-oblong. Stamens, 5 of them with fertile anthers. Ovary linear, compressed, curved, glabrous. Legumes linear, compressed, glabrous, about 20-seeded.

### 10. *Cassia fulgens*. *Showy-flowered Cassia*.

Leaflets 8–10-paired obovato-oblong narrowing and unequilateral at the base rounded with a minute awn at the apex subglabrous, glandules, one between the two lowest pairs of leaflets, racemes 3–6-flowered somewhat longer than the leaf.

*C. crista*, *Jacq. Ic. Rar.* I. 74 ?

HAB. Common, Port-Royal mountains.

FL. June—November.

A shrubby tree, 8–16 feet in height: branches subterete, pubescent towards their extremities. Leaves about 3 inches in length: leaflets rounded, with a minute awn at the apex, narrowing and unequilateral towards the base, glabrous, except the lower third of the under surface of the midrib, which is pubescent: petiole as well as the petiolule pubescent. Stipules  $\frac{1}{2}$  an inch in length, setaceo-subulate, pubescent, deciduous. Glandules, one between each of the two lowest pairs of leaflets, pedicelled, ovate, acute. Raceme axillary, towards the ends of

the branches, somewhat longer than the leaf: peduncle pubescent: pedicels about an inch in length, the four lowest in pairs, accompanied with a glandule similar to those of the petiole. Sepals unequal (the two innermost the largest), roundish, concave. Petals large, showy, more or less concave, veined. Stamens, the 3 largest with anthers arcuate, elongato-filiform at the apex, with the pore 2-lipped, single, hiant; the 4 central stamens with filaments short and thick, and anthers large, recurved at the apex, biporose, filled with bright yellow pollen; the remaining 3 stamens small, abortive. Ovary pedicelled, linear, arcuate, albido-villous with appressed hairs: style short: stigma simple. Legume pedicelled, linear, glabrous, 14-16-seeded.

### 11. *Cassia arborea*. *Lofty Cassia*.

Leaflets 6-paired oblong rounded at both ends emarginate and mucronulated at the apex puberulous and pallido-glaucous beneath, racemes terminal paniced, legumes plane.

*C. setigera*, *De Cand. Prod.* II. 499.—*C. gigantea*, *Bertero, De Cand. Prod.* II. 492.

HAB. Cultivated at the Botanic Garden, St Andrew's, and elsewhere.

FL. Autumn.

A tree 30 feet in height, pyramidal in its growth. Leaflets shortly petioluled, glabrous above, minutely puberulous and glaucous beneath: petiole pubescent. Stipules none. Racemes terminal, paniced; common peduncle sub-compressed, angulose, villosa-pubescent; its divisions generally in pairs, sub-simple, spreading: pedicels an inch in length, compressed, villosa-puberulous, furnished at the base with a small subulate deciduous bractea. Flowers numerous, showy, yellow. Calycine sepals, the 2 outermost opposite, smaller than the rest, thickish; the three inner larger, thinner, and of lighter yellow; all of them roundish, concave. puberulous, ciliated, spreading. Petals, two of them larger than the rest, and one smaller; all of them roundish, obovate, concave, clawed, ciliated, rounded and undulato-crisped at the apex. Stamens, the three lowest small, abortive; the four intermediate in pairs, with fertile 2-pored anthers; the three uppermost, two of them very large and fertile, and the one between them abortive, and of the same size as the intermediate. Ovary compressed, channelled on the sides, puberulous: style terete, glabrous, hooked: stigma on the under surface of the arched portion of the style, niveo-pubescent. Legume about 8 inches long and  $\frac{1}{2}$  an inch in breadth, plano-compressed, many-celled by transverse septæ: seeds numerous, vertical.

12. *Cassia occidentalis*. *Common Cassia*.

Leaflets 5-paired ovato-lanceolate scabro-ciliated, a thick glandule at the base of the petiole, peduncles short 2-4-flowered axillary and terminal, legumes plano-compressed with the sutures calloso-tumidulous.

*Senna occidentalis*, odore opii viroso, glabra, *Sloane*, II. t. 175. f. 3 et 4.—*Cassia herbacea*, major erecta ramosa, *Browne*, II. 24.—*C. occidentalis*, *Swartz*, *Obs.* 159.

HAB. Common in the plains.

FL. Throughout the year.

An erect shrub, 3-4 feet in height: branches few, simple, angulose, with two furrows passing down from each side of the insertion of each petiole, slightly scabrous from minute subulate curved asperities situated in the furrows. Leaflets shortly petiolulated, mucronate: petiole anguloso-sulcated, channelled above, with a sessile glandule near the insertion. Stipules lanceolato-falcate. Racemes axillary and terminal, short, usually 3-flowered. Flowers yellow, pedicelled, each furnished at the insertion with a lanceolate bractea. Pedicels half an inch in length, puberulous. Legume 4-5 inches long.

This very common weed has the character of being medicinal. A decoction of the root is said to be diuretic; and that of the leaves, taken internally, and applied externally, to be useful in the cure of itch, and other cutaneous diseases, in the human subject, and of mange in dogs and horses. The Negroes employ it in the preparation of their baths and fomentations; and apply the leaves, smeared with a little candle grease, to slight sores, as a substitute for adhesive plaster.

13. *Cassia emarginata*. *Emarginate-leaved Cassia*.

Leaflets 2-4-paired elliptic subemarginate or rounded with a small awn at the apex glabrous above pubescent beneath, petioles eglandulose, racemes axillary crowded.

*C. minor*, *Sloane*, II. t. 180. f. 1-4.—*C. emarginata*, *Swartz*, *Obs.* 157.

HAB. Common in dry savannahs, especially along the Windward road.

FL. April—June.

A shrubby tree, 10-15 feet in height, with spreading branches, bearing the leaves at their extremities. Leaflets petiolulated, rounded at the base, incano-pubescent beneath and ciliated, nerved, about an inch in length: petiole subterete, as well as the petiolules pubescenti-hirsute. Stipules setaceo-subulate. Racemes axillary, crowded with the leaves at the ends

of the branches, short. Flowers numerous, yellow, on filiform pubescent pedicels, about an inch in length. Sepals unequal, bluntish, more or less puberulous and ciliated. Petals clawed; one of them larger than the rest, oblong, concave, difformed, twisted, with one side having the appearance of being eroded by insects. Stamens, the three outermost distinct, smaller than the rest, abortive, with the cells of their anthers longitudinally slit open, but empty; the remaining seven with large quadrato-linear puberulous anthers, slightly incurved at the apex, opening by two minute pores. Ovary stipitate, curved, glabrous: style short: stigma simple. Legume about 9 inches long, flattened, slightly curved, with the apex rostrate and hooked, slightly tumid along the sutures, glabrous, black when ripe, many-seeded: seeds separated by transverse partitions, vertical, small in proportion, oblong, flattened, smooth, of a brownish colour.

This is a very common tree along the sea coast in the neighbourhood of Kingston, and affords the principal supply of firewood for the use of the inhabitants of that city.

SECT. 6. *Sepals bluntish. Petals subequal. Stamens 5-10, subequal, all of them fertile: anthers birimose at the apex. Legumes plano-compressed: seeds vertical.*

#### 14. *Cassia viscosa. Viscid Cassia.*

Leaflets 2-paired elliptic apiculated unequal at the base minutely puberulous beneath, stipules subulate, petioles with a subulate glandule between the lowest pair of leaflets and an aristate glandule between the terminal pair, branches and legumes glanduloso-hirsute, raceme terminal.

*H. B. et Kunth, Nov. Gen. Am. VI. 360.*

HAB. Liguanea—not common.

FL. October—December.

Suffrutescent erect, 1-2 feet in height: branches terete, hirsute with the hairs capitato-glandulose. Leaflets shortly petiolulated, glabrous above, minutely puberulous beneath: petiole hirsute with glanduloso-capitate hairs, bearing a minute subulate bristly glandule between each pair of leaflets. Stipules subulate: racemes terminal, short, about 5-flowered. Flowers small, yellow, shortly pedicelled. A small ovate acute hirsute bractea at the insertion of the pedicel, and a minute subopposite pair about the middle. Sepals unequal; externally hirsute; 2 of them obtuse; 3 narrower and subacute. Petals subequal, spatulate, veined. Stamens 5, unequal, but all of them apparently perfect; anthers biporose at the apex. Ovary compress-



ed: style short: stigma obtuse. Legume linear, compressed, glanduloso-hirsute, 7-seeded.

SECT. 7. *Sepals acuminate, subequal. Stamens 10 or fewer by abortion. Anthers oblong, biporose. Legumes plano-compressed, dehiscent: seeds vertical.—Leaves folded up during sleep.*

15. *Cassia glandulosa. Broom Cassia.*

Suffruticose erect, leaflets 15–18-paired lineari-oblong mucronate glabrous above puberulous beneath and ciliated, petiole rufescenti-pubescent, glandule pedicelled close below the lowest pair of leaflets, pedicels 3–4 supra-axillary fasciculate short 1-flowered, legumes 8-seeded.

*De Cand. Prod. II. 503.—Hooker, Bot. Mag. 3435.*

HAB. Common in the mountains.

FL. Greater part of the year.

Erect, fruticose, about 2 feet in height; branches alternate, subsimple, terete, brownish-hairy, compressed and angular at the ends. Leaflets 17-paired, lineari-oblong, mucronate, unequal at the base, ciliated, glabrous, and minutely punctulated above, rufescenti-puberulous and the nerves coloured beneath. Petiole compressed, coloured, rufescenti-puberulous, 2–3 inches long. Glandule close below the lowest pair of leaflets, stalked. Stipules small, lanceolate with the apex attenuated. Flowers 3–4 together, on filiform pedicels, supra-axillary. Bractees lanceolate, attenuated, situated at the base of the pedicels. Calyx bibracteolate: sepals subequal, lineari-lanceolate, acute, pilose on the back. Petals subrotund, clawed, the lowest much larger than the rest, obcordate, spreading; the other four obovate, concave, erect. Stamens 10; 3 of them long perigynous, incurved, tinged with blood-colour towards the apex; two very short; the remaining 5 intermediate, yellow: anthers biporose. Ovary silky-villous, compressed: style incurved, subulate: stigma silky. Legumes nearly two inches long, with the apex acute, and the margin incrassated, brown-pubescent, 8-seeded: seeds black, rhomboidal.

16. *Cassia Chamæcrista. Cane-piece sensitive-plant.*

Erect, leaflets 10–12-jugate oblongo-linear mucronate, glandule sessile beneath the lowest pair, pedicels 2–3 supra-axillary fasciculated shorter than the petiole, legumes hispidulous.

*Browne, 225.—Swartz, Obs. 164.*



HAB. Cane-piece intervals, in seasonable districts.

FL. November.

Herbaceous, erect, a foot or more in height. Leaflets glabrous. Flowers rather small, yellow. Calyx bibracteolated; sepals linear, acute. Legume plano-compressed, about an inch in length.

### 17. *Cassia pilosa*. *Hairy Cassia*.

Ascending, leaflets 5-paired lineari-oblong mucronate ciliated, petioles eglandulose, branches and petioles hispid with long patent hairs, pedicels 2-4 supra-axillary length of the leaf bibracteated at the base.

Swartz, *Obs.* 160.—*De Cand. Prod.* II. 502.

HAB. Common in Cane-piece intervals.

FL. November, December.

Suffruticose, 1-2 feet in length: branches spreading, ascending, rubescent on one side, pilose. Leaflets 4-5 paired, subsessile, rounded at the apex and mucronate, subglabrous above, sparingly pilose beneath, ciliated, about an inch in length: petiole pilose, eglandulose. Stipules falcato-lanceolate, ciliated, striated. Common peduncle scarcely any, supra-axillary, solitary, dividing into 2-4 filiform 1-flowered pedicels of the same length as the leaf. Bractees two, lanceolato-attenuated, ciliated, situated at the base of the pedicels: a pair of small ovato-lanceolate ciliated bracteoles at a short distance from the calyx. Sepals sub-equal, oblongo-lanceolate with the apex obtuse and mucronate, pilose. Petals 5, sub-equal, roundish, slightly clawed, concave, with the margin undulated. Stamens 10; of which 2 are minute short and sterile; 3 filiform, capitate; and 5 sub-equal with fertile anthers. Ovary linear, villous: style short, recurved: stigma simple. Legume an inch and a half in length, plano-compressed, pubescent: seeds about 10.

### 18. *Cassia smaragdina*. *Emerald Green Cassia*.

Subprocumbent, leaflets 10-17-paired linear mucronate puberulous, petiole pubescent bearing a sessile glandule below the lowest pair of leaflets, pedicels about 4 fasciculate one-flowered supra-axillary, legumes pilose.

HAB. Common in the mountain districts.

FL. Great part of the year.

Stem dividing near the root into several branches; branches subsimple, procumbent near the base, afterwards ascending, terete, pubescent. Leaflets ciliated, parallelly veined: common

petiole about 2 inches in length, angulose, pubescent. Glandule situated on the petiole close to the lowest pair of leaflets, sessile, cup-shaped. Stipules lanceolate, attenuated, auriculated at the base on the lower edge, longitudinally nerved, ciliated. Flowers rather small, yellow, pedicelled, supra-axillary,  $\frac{1}{2}$  of an inch in length, about 4 together, sometimes two or three on a common short peduncle. Bracteas lanceolate, attenuated, acuminate, ciliated, at the base of the pedicels; and a similar pair below the calyx. Calycine sepals sub-unequal, lanceolate, acute, ciliated, pilose. Petals sub-unequal. Stamens 10: anthers biporose. Ovary compressed, sericeo-villous: style hooked: stigma looking towards the torus, capitato-depressed. Legume an inch or more in length, apiculated with a small persistent portion of the style, pilose, 9-seeded: seeds rhomboidal, compressed.

I have given the specific name from the beautiful bright green of the leaflets.

### 19. *Cassia pygmæa*. *Pigmy Cassia*.

Prostrate, leaves 4-7-paired, branches subglabrous, leaflets linear mucronate, petioles pubescenti-hairy bearing a pedicelled glandule near the base, pedicels solitary axillary 1-flowered longer than the leaf bi-bracteated above the middle, legumes pubescenti-hirsute.

*C. repens*, Swartz, *Obs.* 161.—*C. pygmæa*, Bertero, *De Cand. Prod.* II. 502.

HAB. Pastures, Liguanea.

FL. After the October rains.

Stem prostrate, filiform, glabrous, sub-ramose. Leaflets 2-4 lines in length, minutely serrulato-ciliated: petiole pubescent at the base. Stipules ovato-lanceolate, sub-ciliated. Flowers axillary, solitary, peduncled: peduncle at first shorter, afterwards longer than the leaf, 1-flowered, filiform, glabrous, bearing a pair of lanceolate bracteas above the middle. Calycine sepals subequal, lanceolate, deciduous. Ovary appresso-sericeous: stigma obtuse. Legume hairy.

### 20. \* *Cassia virgata*. *Twiggy Cassia*.

Erect, leaflets 10-paired ovato-lanceolate mucronate villous beneath, glandule pedicelled beneath the lowest pair, pedicels 1-flowered axillary double the length of the petiole hairy.

Swartz, *Fl. Ind. Occ.* 728.

HAB. —?

FL. —?

Shrubby, 2-3 feet in height: branches virgate, flexuose, pubescent. Leaflets sessile, villous with the hairs flavo-virescent. Flowers rather large, fulvous. Sepals lanceolate, pubescent. Legumes linear, compressed, margined, glabrous, many-seeded.—*Sw.*

21. \* *Cassia lineata*. *Lineated Cassia*.

Erect, leaflets 5-paired oblong obtuse mucronulated pubescent beneath glabrous above as also the branches and petioles, glandule sessile at the base of the petiole, pedicels axillary and lateral 1-flowered, legumes hairy.—*De Cand.*

*Swartz, Fl. Ind. Occ.* 726.

HAB. Common, *Swartz*.

FL. —?

Stem suffruticose, 1-3 feet in height, glabrous. Leaflets pubescent beneath. Flowers rather large, yellow. Legume 2-5 inches in length, linear, acinaciform, compressed, margined, hairy: seeds 10-12, subrotund, slightly compressed.—It approaches, according to Swartz, to *C. PILOSA*.

LI. HYMENÆA. *Locust-Tree*.

Calyx bibracteolated at the base, 5-partite (sometimes 4-partite from 2 of the lobes being united into one). Petals 5, subequal, glandulose. Stamens 10, distinct. Legume woody, 1-celled, fariniferous, many-seeded: embryo straight.

Trees. Leaves bifoliate.—It is named after Hymen the god of Marriage, from the leaves growing in pairs.

1. *Hymenæa Courbaril*. *Leathery-leaved Locust-Tree*.

Leaflets leathery indistinctly veined, unequal at the base oblong shortly and obtusely acuminate, panicle with the flowers peduncled, legumes not tuberculated.

*Browne*, 221.—*Lam. Ill.* t. 330. f. 1.—*Dec. leg. Mem.* XII. t. 26. f. 120.

HAB. Common in Liguanea, and in the Plains of St Elizabeth.

FL. July.

A lofty spreading tree. Extremities of the branchlets terete, marked with ferruginous reticulated prolonged scales. Leaves

alternate, petiolated, binate: leaflets oblong, unequal at the base, entire, obtusely acuminate, coriaceous, nerved, subvenose, dark green above, paler with minute dark green punctæ beneath. Panicles terminal, peduncled. Bractees membranaceous, deciduous, leaving on the pedicels annular scars. Calycine sepals 4, deciduous, one of them capable of being divided into two; the two outermost thickish, coloured with purple, the others partially so, ovate, obtuse. Petals 5, white, ovate, thin, pellucido-punctate. Stamens 10, distinct, filiform, subulate, not inflated, nearly an inch and a half long, white: anthers oblong. Ovary pedicelled, oval, compressed: style filiform, curved: stigma simple. Legume woody, ovato-oblong, 1-celled, fariniferous, about 3-seeded; externally of a chocolate colour, rough.

This is a lofty tree, said to have been introduced from the Continent of South America. It is very valuable in many respects. The mealy substance, in which the seeds are enclosed, is sweet and pleasant to the taste, and is much relished by the Indians of the Continent. It is apt to purge when recently gathered, but loses this property as it becomes old. A decoction of the pulp, allowed to ferment, forms an intoxicating drink resembling beer. A fine transparent resin of a yellowish or red colour exudes between the principal roots. It is the *Gum Animi* of the shops. It requires highly rectified spirits of wine to dissolve it, and makes the finest varnish that is known, superior even to the Chinese *lacca*. It burns readily, emitting a grateful and fragrant smell, and has been employed by way of fumigation in attacks of spasmodic asthma, and other embarrassments of respiration. In solution, it is given internally in doses of a teaspoonful, as a substitute for Gum Guaiacum, for rheumatic and pseudo-syphilitic complaints, and employed externally as an embrocation. From this resin an oil may be distilled. A decoction of the inner bark is said to act as a vermifuge. The wood is considered an excellent timber; is extremely hard, of a close texture, and is so heavy that a cubic foot, according to Jacquin, weighs about a cwt. It takes a fine polish, and is well adapted for making the cogs of wheels in machinery.

The American locust tree is a species of *ROBINIA*, and that of Scripture is the *CERATONIA SILIQUA*.

## LII. BAUHINIA.

Sepals 5, concrete into a 5-fid or laterally-cleft membranaceous calyx. Petals 5, oblong, subunequal, with the upper one generally distant from the rest. Stamens 10, submonadelphous: anthers 5-7-9 of them barren. Ovary pedicelled, long. Legume 1-celled, 2-valved, many-seeded: seeds oval, compressed.

Named after two brothers, John and Caspar Bauhin, both of them distinguished in Botany. The leaves are bilobed, as if from the union of two single leaves.

1. *Bauhinia porrecta*. *Mountain Ebony*.

Leaves cordate puberulous along the under surface of the nerves, as also the petioles and branchlets, leaflets united as far as the middle ovate acuminate 3-4 nerved, petals lanceolate.

*Sennæ spuria* aut *Aspalatho affinis arbor siliquosa, foliis binis*, *Sloane*, I. 51.—*Bauhinia foliis bilobis, spicis laxis terminalibus*, *Browne*, 286.—*B. porrecta*, *Swartz*, *Prod.* 66.—*Jacq. Schænb.* t. 100.—*Sims*, *Bot. Mag.* 1708.

HAB. Common: lower hills, in thickets.

FL. Throughout the year.

A shrub, about 6 feet in height: branches erect. Lobes of the leaves 3-nerved, besides the middle nerve common to both; nerves subparallel. Racemes terminal. Flowers tinged with red, or sometimes white. Nine of the stamens monadelphous and sterile; the tenth long, free, antheriferous.

*B. AURITA*, distinguished by "glabrous leaves, leaflets united for  $\frac{1}{4}$ th of their length oblongo-lanceolate 8-nerved, and petals ovate," is said to be indigenous, although it has not been noticed by any of the Botanists who have visited the Island. *B. PUBESCENS De Cand.* is probably a variety of *B. TOMENTOSA* produced by cultivation, the latter being a very common shrub in our gardens.

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